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ABSTRACT

Four issues of this newsletter focus primarily on the use of communication technologies in developing nations to educate their people. The issues included in this collection are: (1) No. 60 (1988-1), which features articles on the recent emergence of intercountry networks of collaboration (resulting in the sharing of staff, equipment, and consultants to produce local health training materials), the role of the mass media in Nigerian development, conducting surveys, and the utilization of interactive radio for education in rural areas of the Dominican Republic; (2) No. 61 (1988-2), which features articles on the use of computer simulations in educational policy making, traditional theater for family planning in Mali, averting barriers to success when implementing educational radio projects, and the training of health workers in visual communication in Sri Lanka; (3) No. 62 (1988-3), featuring articles on marketing interactive radio instruction to school teachers in Honduras, traditional theater for rural development in Burkina Faso, and puppetry for development in the Philippines; and (4) No. 63 (1988-4), focusing on trends in distance education and also including articles on teacher training and the quality of instructional messages. Reviews of recent publications and announcements of development-related conferences and courses are also provided in each issue. (GL)

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Sharing Health Materials and Information Developing Countries

by Roberta Ritson

A promising sign of growing self-reliance in developing countries has been the recent emergence of intercountry networks of collaboration on training materials for the health sector. A number of developing countries are working together to share staff, equipment, and consultants to produce their own health training materials.

The lack of appropriate and relevant teaching and learning materials for primary health care staff in developing countries is one of the most serious barriers to health development. Where teaching materials for health care staff do exist, they are often out of date, of poor quality, or are not relevant to the local health care situation. In addition, many have been adapted or translated from texts prepared in another country. Training materials for primary health care staff are best developed in the country where they will be used so they reflect the local language and culture. There are also differences in educational levels and in the types of tasks performed in a country's health care system that must be considered.

Program Objectives and Structure

More than twenty countries are now participating in the Interregional Health Learning Materials (HLM) Programme which is coordinated by a central clearinghouse in the Division of Health Manpower Development at the World Health Organization (WHO) in Geneva, Switzerland.

The Interregional HLM Programme has two primary objectives: to enable developing countries to produce their own relevant teaching, learning, and promotional materials for their national health care staffs; and to encourage interregional sharing of scarce resources, and to promote the exchange of materials and production experiences.

For national HLM projects to operate effectively on a long-term basis, they must be well integrated into a national ministerial infrastructure or face possible collapse when financing is withdrawn. Therefore, HLM projects are usually located within a ministry of health or education in participating countries, or within a university-level institute of training in health sciences.

A Central Clearinghouse in Geneva.

Supporting this in-country activity is a central clearinghouse on health learning materials in Geneva, which serves as a focal point for the collection and dissemination of information on training materials, specialized consultant services, and technical advice. It also coordinates intercountry exchanges of

(*Continued on page 5*)

Wilbur Schramm: An Appreciation

Readers of the *Development Communication Report* lost a friend and an intellectual forebear on December 27, 1987, when Professor Wilbur Schramm passed away at the age of 80. Wilbur Schramm was the father of communication research as an academic discipline, founding the communication research institutes at the University of Illinois and then at Stanford University. In doing so, he molded modern communication research into its multidisciplinary nature, drawing together the various communication arts practitioners. He showed that our understanding of communications could, in fact, be based on scientific study; communication became one of the human sciences.

In the early 1960s, Wilbur began to generate a vision of how communication technologies could be used in the service of newly developing countries. His seminal book, *Mass Media and National Development*, 1964, inspired people everywhere to think seriously about how communications could be used by people in the emerging nations to bind diverse societies into functioning, cooperating wholes; to educate; to train. He challenged leaders to see that communications could transcend the limitations of social and geographic isolation. That vision inspired the work of many, the author included.

From the late 1960s onward, I had the privilege of working with Wilbur Schramm in developing and funding, through the Agency for International Development (A.I.D.), a program of activities designed to lay a foundation for the future of development communication: case studies on the new educational media; evaluations of the pivotal instructional broadcasting projects in Samoa and El Salvador; policy studies of educational satellite potential in India; and research for the influential volume, *Big Media, Little Media*. In all these efforts, Wilbur Schramm showed that he was a tough-minded visionary, able to clearly see the practical limitations of many innovative efforts while distilling what could be learned to make subsequent success more probable.

(*Continued on page 2*)

Reader Survey Inside!

It has been nearly four years since we last asked our readers to complete a survey questionnaire. In this era of rapid change, that is a long time. We think it is time again to ask you about *DCR*: Is it meeting your needs? What changes or additions would you like to see? So, please, take a few moments to fill it out (it's only one page); then fold and return it to us via Air Mail if at all possible.

Thanking you in advance for your cooperation.

Kathleen Moran, Editor

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Development Communication Report

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Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

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Academy for Educational Development

(Schramm *continued from page 1)*

His respect for hard data was something I particularly appreciated. it was a respect that arose from a belief that we could develop communication as a serious tool for serving human aspirations only if we looked objectively at its effects on human beings, their learning, their behavior, their attitudes, and their social organization. Neither dreams nor careful plans of social planners were enough. People used and related to the new communication media in unexpected ways, which needed to be clearly observed and understood. The stream of research that was undertaken has served a central role in both demystifying and legitimizing the usefulness of the media for achieving major social undertakings.

Dr. Schramm was a superb writer, one who could describe research and its policy implications in a remarkably vivid, human way. (He had been a reporter and was the first director of the famous Iowa Writer's Workshop at the University of Iowa.) Those qualities also underlay his enormous contribution to the teaching of a generation of development communication specialists. With them, we at A.I.D. were able to create the intellectual infrastructure needed to make development communication a field. Through A.I.D. grants that culminated in the establishment of a master's program in development communication at Stanford University, these efforts attracted, trained, and nurtured such leaders in the field as Emile McAnany, John Mayo, Robert Hornik, and later Heather Hudson, Dennis Foote, Bella Mody, as well as scores of other superb scholars and practitioners throughout the world. After retirement from Stanford University in 1973, Dr. Schramm went on to more than a decade of continued writing and teaching at the East-West Center's Center's Institute of Culture and Communication in Honolulu, Hawaii, touching and training many others. Through these people and through his books, the fundamental contribution of Wilbur Schramm lives on and increasingly enriches our field and our lives.

Thank you Wilbur, well done.

Dr. Clifford Block
Associate Director for
Educational Technologies and
Communication,
Office of Education,
Bureau for Science Technology,
Agency for International Development

XIII World Conference on Health Education

The International Union for Health Education will hold the XIII World Conference on Health Education from August 28 to September 2, 1988 in Houston, Texas, U.S.A. The conference theme, "Participation for All in Health," further develops four sub-themes: involving people and communities; supporting community access; involving all relevant practitioners; gaining intersectoral support. The program includes papers, workshops, special interest groups, and networking sessions. A major exhibit will feature international state-of-the-art health education products, materials, and scientific exhibits.

For more information contact Dr. Judith Ottoson, Executive Director, International Union for Health Education, P.O. Box 20186, Suite 902, Houston, Texas 77225, U.S.A.

Clarification

In *DCR* No. 59, the article ***Expanding Telephone Service in Rural Brazil***, by Greta Nettleton, carried an incorrect description of the riverboat telephone system. UHF radios are not placed in villages; instead, radios are installed on riverboats which people embark and make their telephone calls. Also, in describing the cost of telephone service for Brazilian ranchers, a sentence was omitted that compared satellite telephone systems to typical radio links to demonstrate that an individual satellite telephone system would cost ten times that of a radio link, putting it out of reach of even relatively wealthy ranchers. We regret these errors of omission and interpretation.

Conference on Education and Development

The Southeast Asian Ministers of Education Organization Regional Center for Educational Innovation and Technology (SEAMO/INNOTECH), the Southern Illinois University at Carbondale, and the University of South Carolina are sponsoring a conference in which the roles of education in development will be examined. Practitioners in educational development, rural education, distance learning, and low-cost instructional planning are being invited to participate.

The conference will be held November 16-19, 1988, in Manila, Philippines. For further information contact the Director, INNOTECH, P.O. Box 207, University of the Philippines, Diliman, Quezon City, Philippines or the Dean, School of Technical Careers, Southern Illinois University, Carbondale, Illinois 62901, USA.

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(Please ignore the numbers in parentheses beside the boxes, they are for our coding purposes only.)

READER SURVEY - 1988

Each question indicates the number of boxes you are asked to ☑ check.

1. In which field do you do most of your communication work? (☑ one box only)

☐ population (1)
☐ agriculture (2)
☐ health (3)
☐ education (4)
☐ nutrition (5)
☐ telecommunications (6)
☐ other ______ (7)

2. Check the box that best describes you (☑one box only)

☐ Project staff (1)
☐ Consultant (2)
☐ Academic (3)
☐ Information manager (4)
☐ U.S.A.I.D. staff (5)
☐ Government official (6)
☐ Other ______ (7)

3. Where do you conduct most of your work? (☑ as many as appropriate)

☐ Africa (1)
☐ Middle East (2)
☐ Asia/Pacific (3)
☐ Caribbean/South America (4)
☐ Mexico/Central America (5)
☐ Europe (6)
☐ U.S.A./Canada (7)
☐ Other (8)

4. How do you read the DCR? (☑ one box only)

☐ Thoroughly (1)
☐ Selectively (2)
If so, what type of articles?
______
☐ Add to a collection for others to read? (3)

5. Approximately how many other people read your DCR? (☑ one box only)

☐ none (1)
☐ (1-5) (2)
☐ (6-10) (3)
☐ (11-20) (4)
☐ (over 20) (5)

6. Have you used DCR in any of the following ways? (☑ as many as appropriate)

☐ Project design and evaluation (1)
☐ Teaching research (2)
☐ Preparing for professional meetings/seminars/conferences (3)
☐ Ordering publications/ requesting information (4)
☐ Reprinting articles (5)
☐ Other: ______ (6)
______

7. Did you ever use a specific idea from the DCR or suggest an idea to someone else who used it? (☑ one box only)

☐ No (1)
☐ Yes If yes, please briefly describe the idea. (2)
______
______

8. Would you like to see DCR: (☑ as many as appropriate)

☐ Continue to provide articles on specific communication strategies? (1)
☐ Continue to cover technology applications? (2)
☐ Alert readers to new communication issues? (3)
☐ Be expanded? (4)
☐ Have more pictures/graphics? (5)
☐ Be translated into? ______ (6)
☐ Include a new section about? ______ (7)
☐ Other suggestions (Please use back flap) (8)

9. Do you find the English in the DCR: (☑ only one)

☐ Quite easy to understand? (1)
☐ Somewhat difficult to understand? (2)
☐ Very difficult to understand? (3)

YOUR PARTICIPATION IS IMPORTANT !
PLEASE COMPLETE THE SURVEY AND RETURN, VIA AIR MAIL,AS SOON AS POSSIBLE.
THE RESULTS OF THIS READER SURVEY WILL BE PUBLISHED IN A FUTURE EDITION OF *DCR*.
THANK YOU !!

SECOND FOLD

From:

____
____
____

AIR
MAIL

Kathleen Moran, Editor
Development Communication Report
Clearinghouse on Development Communication
1255 23rd Street, N.W.
Washington, D.C. 20037, USA

FIRST FOLD

We welcome your comments and suggestions:

(**Ritson** *continued from page 1*)

staff for training in special skills such as printing, illustration, or microprocessing techniques for the preparation of texts.

For example, the clearinghouse arranged for the Tanzanian HLM project manager, who has several years of experience in HLM development, to advise the Ugandan Ministry of Health on how to plan and develop its national HLM project. The clearinghouse also coordinate workshops in developing countries to train people in production processes using locally available materials and resources (see photo).

Promoting Intercountry Collaboration

Establishing in-country expertise in materials development is a difficult task on its own. But, when one developing country works with another on common concerns, the difficulties can be even greater. Whereas technical cooperation among developing countries has existed for a long time, practical examples of effective intercountry networking are not easily recalled. One such activity initiated by WHO's Geneva clearinghouse was a two-week intercountry workshop for writers and editors of training materials for health workers held in Rabat, Morocco, in 1986, attended by French-speaking health staff trainers from Benin, Mozambique and Rwanda, and staff from the Moroccan Ministry of Health.

Using Computers

Countries participating in the Interregional HLM Programmes are being equipped with compatible microcomputers and are beginning to exchange training materials texts on diskettes for adaptation purposes. In order to share materials and information, a reliable transfer system must be available and microcomputers equipped with word processing software represent an ideal technology for this purpose. It permits rapid and accurate exchange of educational materials that can be modified to include local references and culturally relevant illustrations.

As part of the ongoing network activities some countries are undertaking research projects on such topics as the development of training curricula to ensure their relevance to professional tasks, and the uses of distance education to train rural health staff. Recently, a joint research project has been proposed between Benin and Rwanda to investigate the use of training materials for different levels of health workers. Such research benefits not only the institutions or countries involved, but, if published and disseminated, can make a significant contribution on a regional level as well.

Exchange in Action

Exchanging information on the production of national training materials has focused primarily on four main language groups: the English-speaking network, the francophone group, the Portuguese-language countries in Africa, and the Arabic network. Country project managers in the English network in Ethiopia, Kenya, Sudan and Tanzania have already met at a training workshop in Nairobi to share materials and experiences.

Information materials for the community must be developed with local needs and conditions in mind (WHO photo by P. Almasy)

A network of African countries is collaborating on Portuguese-language training materials which are urgently needed for all levels of health personnel in Angola, Cape Verde, Guinea-Bissau, Mozambique, and São Tomé and Principé. The Mozambique HLM project in Maputo was host in May 1987 to a meeting of representatives from other Portuguese-speaking ministries of health, which established intercountry contacts to share materials, and also launched a similar project in Guinea-Bissau.

The Arabic-speaking network is developing in the WHO Eastern Mediterranean Region. A recent meeting on Arabic-language teaching and learning materials for health workers held in Damascus in July 1987, brought together participants from ministries of health and training institutions in Bahrain, Jordan, Lebanon, Morocco, and Syria. At that meeting, four areas were selected for intercountry collaboration: school health; health education for primary health care workers at the community level; information, education, and communication for middle and lower level nurses and health inspectors in training; and continuing education for middle level health staff in environmental health. These programs will be organized and coordinated through the HLM clearinghouse at WHO regional headquarters in Alexandria, Egypt.

The Emergence of Lead Institutions

As intercountry activities develop, a lead institution emerges for that region as coordinator for health learning materials. This lead institution usually has a well-established HLM unit with relevant experience in the field and access to a production facility. The institution initiates network activities such as workshops and meetings, or acts as a clearinghouse for information materials and training manuals in the region.

In Kenya, the College of Health Professions in Nairobi acts as a lead institution for HLM projects in Ethiopia, Kenya, Sudan, Tanzania, and Uganda. The focus of this intercountry collaboration is an AIDS education program, and the College will play a significant role in coordinating information activities to help combat the spread of the disease.

In other regions, the lead institution may be a non-governmental organization or a WHO Collaborating Centre which provides consulting services and training in the areas of design, editing, and printing of educational materials.

The Interregional Health Learning Materials Programme has fostered cooperation and sharing among participating countries and has engendered a spirit of independence that will be required to carry on its activities after the withdrawal of external aid. It also has produced some significant results with increased availability of appropriate educational materials for primary health care in developing countries. ■

Dr. Roberta Ritson is a technical officer with the Division of Health Manpower Development at the World Health Organization in Geneva, Switzerland. She can be reached at the Health and Learning Materials Programme, Division of Health Manpower Development, WHO, 1211 Geneva 27, Switzerland.

Mass Media and National Development: The Nigerian Context

by Chris Okwudishu

Most writers on the subject agree that there is or should be an interactive relationship between the mass media and national development. One communication researcher writes that "the task of the mass media of information and the new media of education is to speed and ease the long, slow social transformation required for economic development, and in particular to speed and smooth the task of mobilizing human resources behind the national effort."

Another expert in the field emphasizes the importance of information in national development but argues that with the mass media usually being concentrated in urban centers, the content is often urban oriented and reaches the villagers through interpreters who also have an urban outlook. What the villagers eventually receive is incomplete, outdated, or distorted news that is scarcely relevant to their needs.

Numerous writers have suggested different ways in which the mass media can be used more effectively to support national development efforts. Within this frame of reference I have explored the relationship between the mass media and national development in Nigeria.

Who Has Access?

In Nigeria, the mass media have not and probably will not for some time to come make a significant contribution to national development. Therefore, the question that must be asked is: Can one talk about mass media affecting national development in Nigeria when, in fact, there are no effective mass media in place?

With a 35 percent literacy rate in some areas of the country, the newspaper can hardly be called a mass medium. Reaching a wide audience is difficult when a majority of newspapers are published in English rather than in one of the major local languages. And, distribution of these papers is greatly hampered by poor roads and an even poorer public transportation system, particularly in the rural areas where 70 percent of Nigerians live.

Radio appears to be the only candidate that comes near to being a mass medium in Nigeria. There is no question that radio has penetrated many remote villages in most developing countries. However, points not often considered are the relevance of messages being broadcast, the quality of reception, and the extent to which particular messages reach the intended audiences. For instance, in most rural areas of Nigeria there is no electricity to power radios, and in many cases people cannot afford the price of dry cell batteries. The case of television is even worse; it has barely penetrated rural Nigeria.

Little or no audience research has been done for either radio or television to determine if farmers tune into programs on modern agricultural methods, or if a housewife listens to or watches programs designed to inform her about better child care techniques, or if the public listens to the announcements and jingles about the need to keep their environment clean.

Inappropriate programming is another reason the mass media, particularly radio and television, have not contributed significantly to national development. In developing countries, the social, economic, political, and cultural needs of the people dictate that radio and television programs should strive to provide information, education, and generally an understanding of the society in which they live. Unfortunately, there does not appear to be an overall guiding philosophy in program development in most Third World countries, and Nigeria is no exception. Instead, one finds foreign programs that satisfy the interest of a small elite population and do not extend and improve the educational, social, or cultural environment for a majority of the nation.

Needed: A Communications Policy

Lacking an established policy on how to use the mass media to further Nigerian national development efforts, government agencies independently engage in educational campaigns with little or no interagency coordination. Many of these efforts have resulted in duplication and waste of both human and material resources. To address this problem, a proposal was made at a recent seminar on National Communication Policy to establish a National Broadcasting Commission. Its mandate would be to coordinate broadcasting activities and to institute general guidelines and policies for all Nigerian federal and state broadcasting organizations.

The seminar also recommended the establishment of a National Council for Communication Training and Research. If established, this council would set guidelines for the examination and certification of Nigerian journalists to promote professionalism within their ranks.

If these and other recommendations of the seminar are implemented, a giant step will have been taken toward making the mass media important instruments of national development.

Some Suggestions

If we accept the definition of development as being a widely participatory process of social change in which the people have an opportunity to take part in making decisions that affect their lives, the need to properly integrate the mass media into national development efforts becomes apparent. This might be accomplished by relinquishing some government control in favor of alternative or commercial broadcasting operations and encouraging increased educational and national development programming.

All stations, state run or private, would be required to air a given number of hours of educational programming per week to encourage them to address local issues and problems. To assure compliance, defaulting stations would be penalized either by license withdrawal, or in the case of state-operated stations, by withholding federal government matching grants.

Radio and television are necessary tools for social change and national development. If the Nigerian government desires to use mass media to establish a dialogue with its rural population, radio and television facilities will have to be equipped with the capability to accomplish this task and then policies and guidelines will have to be established to support this process. ▫

Chris Okwudishu is a Lecturer at Ondo State University, Ado-Ekiti, Ondo State, Nigeria.

CARINET: Low-cost Computer Communications

CARINET, an international computer communications network, has recently added a health component that will give members access to several health-related databases. This service is in addition to those already in place for agriculture, education, environment, and disaster relief via CARINET's global development network.

A discussion of these services and applications of computer and other international communications technologies in the health field will be featured at the National Council for International Health national conference to be held May 19-22, 1988, in Washington, D.C.

For more information please contact: Noreene Janus, Director, CARINET, 50 F St., N.W. (Suite 900), Washington, D.C. 20001, U.S.A. Phone: (202)638-4905.

TUNING IN

RADECO: A Precedent in Education

(Radio Assisted Community Basic Education (RADECO) was initially an A.I.D.-supported pilot project in the Dominican Republic to provide interactive radio instruction to children living in rural areas with no primary schools. RADECO is now a fully institutionalized program within the government's Secretariat of Education, Fine Arts, and Religion. The following is an unofficial translation of an article appearing in the Santo Domingo La Tarde Alegre, *on November 10, 1987.)*

by Virginia Berges Rib

Radio Community Education (RADECO) is an innovative program that is creating important national and international precedents in providing education to rural populations.

The initial lessons of the first four years of school were offered in 1982 when the project was still in the experimental stages. Today, RADECO maintains 64 centers in 54 communities in the southwest provinces of Barahona, Bahoruco, and Independecia, and students have completed the first four-year sequence of instruction.

It is an excellent example of radio technology's support to community education, employing an interactive teaching method and offering an alternative solution to the problems confronting the Dominican Republic's education system.

Along with primary education programs, two weekly programs motivated the community to join in the project. "Education with the People" and "Teaching Update" are offered on Thursdays at 7:30 p.m. and Saturdays at 7:00 p.m. on the Dominican Radio and Television network.

Because activities are being carried out in the country's southwest region, little is known about RADECO in Santo Domingo, where its headquarters is located, but RADECO is disseminating important new programs in Dominican education. It is a strategy which uses radio to achieve a number of objectives in our educational system.

Campesino children are offered the opportunity to learn how to read and write and to complete the first four grades of primary education. To carry this out, community members elect helpers, *auxiliares*, who, after brief training, function as teachers. They must also prepare a building in which the students can gather for classes – generally an open thatched-roof structure furnished with simple stools or tree stumps for seats where the children listen attentively to the RADECO lessons.

RADECO gives the centers a radio and teaching materials for the lessons, which are broadcast in the afternoon. The schedule is determined by the need for daylight in communities without electricity, and because the children work in the fields with their parents in the mornings.

Agricultural production cycles determine the times of the year RADECO courses are offered. Internal migration is intense in areas where *campesinos* move their families to pick coffee, or to harvest cotton and tomatoes.

Consequently, RADECO's schedule does not coincide with the official school year; only two grades are offered each year. The dropout rate is high, but children sometimes join RADECO centers in the new communities where their parents' work takes them.

Characteristics of RADECO

Radio's limited sensory impact and its one-way nature demand preparation of scripts that hold the childrens' attention and avoid monotony. RADECO technicians use an interactive methodology with questions, songs, and exercises to elicit verbal, written, and mimicry responses from the students. Traditional community values are combined with national values in the lessons which always end with the national anthem.

Some Background

RADECO originated as an experimental program sponsored by A.I.D. to test the potential for learning by radio. Projects were carried out in Nicaragua, Kenya, and the Dominican Republic, but only here has a permanent program been created. Its success was such that it has offered technical assistance to new programs of its kind, for example, one initiated recently in Honduras.

The southwest region's geographic and socioeconomic characteristics made it the zone of choice for RADECO's first phase, as the project was designed to address the national education system's deficiencies.

During the earlier years, the project was administered under contract with InterAmerica, a U.S. development organization with participation of Dominican technicians. From the sixth year, the project has been assimilated by the Secretariat of Education, with continuing support from A.I.D. and full endorsement from the Dominican government.

In response to the possibility of extending RADECO to other communities in the Dominican Republic, Director Altagracia Diaz de Jesus said "the ideal would be to create for each region a new program which responds to the educational needs of the nation while focusing on local characteristics." However, since creation of a separate system for each region would be very costly, adapting the southwest's program to other regions would be more feasible and economical. RADECO's 1988 plans are to expand the program's coverage, creating new centers in Pedernales and Elias Pinas provinces. ■

Two Interactive Radio Publications Available

The Clearinghouse is distributing two new publications on radio-based education in pilot sites in two countries, funded by the U.S. Agency for International Development.

Radio Assisted Community Basic Education (RADECO) presents an overview of the interactive radio education project that was implemented in the Dominican Republic and has recently been integrated into the country's educational system. The RADECO project provides radio-delivered instruction in rural areas where there are no schools and where children must work during regular school hours. It is intended to serve as a basic model for the implementation of instructional broadcasting programs at the primary level in similar educational circumstances.

Teaching English By Radio: Interactive Radio in Kenya documents the activities of a five-year project. The purpose of the Radio Language Arts Project was to develop, implement, and test the effectiveness of an instructional system that used radio intensively to teach English as a foreign language at the lower primary school level (grades one to three). Its setting was Kenya.

Both books are available free to developing countries, US$5 to developed countries, from the Clearinghouse on Development, 1255 23rd Street, N.W., Washington, D.C. 20037, U.S.A. Please indicate by title which volume you want if you are ordering only one.

A Communicator's Checklist

1 Development Communication: Information, Agriculture, and Nutrition in the Third World

Development Communication: Information, Agriculture, and Nutrition in the Third World, by Robert C. Hornik, (New York and London: Longman, 1988) 182 pp.

This book summarizes two decades of experience of the author, Robert Hornik, certainly one of the most competent scholars of development communication working today. Like its author, this book is serious about the topic and should not be taken on a plane ride for light reading or placed on a night table for a quick skim before going to sleep.

The effort to read the book carefully, however, is rewarding for those who wish to understand the case for development communication. One can read it at two levels: first as an analytic discourse on the logic of planned communication interventions with the available evidence from the social sciences; second as an apologia (I mean this in a positive sense of a careful set of conclusions and judgments about communications' impact extrapolated from experience and the available evidence) for the role that information aided by communication technologies may play in solving serious human development problems. The two are closely tied together in the text. Hornik, the demanding critic of data, also has high hopes for the usefulness of communication technology's role in information for behavior change.

The author begins the book with a previously developed functional analysis of communication's role in development that he has published elsewhere calling it "communication as complement." It is important to understand the basic assumption at work in this early chapter and in the remainder of the book concerning the idea of "complement." Hornik sees communication as helping but not causing significant change, complementing economic and cultural changes in a society or operating in that sometimes small opening for change in an otherwise rigid system.

This assumption is central and frequently referred to throughout the text when the author asks repeatedly whether there is evidence for the potential behavior change through better information in specific agricultural and nutritional problems, even when economic and cultural determinants are strong. There are many critics of development communication who have dismissed this potential for change as negligible or non-existent, and have fallen back on a reductionist model of political economy as all determining.

Hornik's strength is that he accepts the evidence about the degree that economic (and perhaps cultural) factors limit behavior change in many situations. On the other hand, he is far too honest to be caught in the trap of expecting change where there is no supporting evidence. Thus he carefully outlines where and under what conditions information has been shown to play a role in behavior change.

The second chapter tackles a daunting problem: why there have been so many failures in development communication. This frank statement puts distance between the author and those apologists who have nothing but praise for technology, but who do not take seriously the problems of development. In this chapter, Hornik suggests three possible reasons for failure: theory failure (or what I call incorrect assumptions about the nature of the problem); program or design failure in doing an intervention right; and political failures, where members of power structures in given countries do not accept the intervention as serving their interests.

Throughout the remainder of the book and in the conclusion, Hornik leans heavily toward program failure; perhaps because that is where development communication can accomplish something in the disturbing development environment. He refers to the failure of political will but seems to sense that little can be done on this score. Instead, he suggests the strategy of looking for situations where political changes are already in process or at least favorable to a given intervention.

The two major sections of the book are on agriculture and nutrition. Some readers may discover that sections of the discussion and analysis are dense and difficult to follow, but they are worthwhile pursuing in depth for two reasons. First, unless one understands the issues raised by the author in the substantive agriculture and nutrition sections, the conclusions about applications may make little sense. Second, it helps one get a better grasp of the development communication field. Hornik makes it clear that in order to use different communication technologies well, they have to be adapted to the real needs of a particular development sector. This requires professional communication researchers to understand both the substantive problems of the development field and the various communications strategies. This, then, is not a cookbook or a how-to book, but a serious effort to make sense of how communication might play a role in the development of Third World countries.

The final chapter goes beyond the analytic method and the empirical evidence and tries to generalize the findings for the benefit of planners. Here, the apologia takes precedence and Hornik gives us his ideal system and its assumptions on how things *might* and *should* work. The system proposed could be called radical in the sense that the author disputes the received wisdom of diffusion and development communication research about the predominant role of field agents in facilitating individual change. Hornik argues that, given economic and management constraints, in order for most Third World countries to reach the majority of their populations with information, their media systems ought to replace conventional field agent systems. The political feasibility, by the author's own admission, is not great, but the proposal needs to be taken seriously. There is sufficient evidence on behalf of media-based systems promoting behavior change to make this argument more than just advocacy, but there are also problems to be faced.

My own question regarding Hornik's ideal system, however, is not so much the political feasibility of dismissing or retraining agricultural extension agents. Rather, I question the feasibility of a national mass communication institution that can create and maintain a feedback system responsive to the wide variety of audience needs. The idea of feedback or feedforward has been around long enough to have been tested seriously, but the only evidence currently available comes from pilot projects that were heavily supported by outside institutions. A national system of this kind has yet to operate, much less show its feasibility in the development context of the Third World. The question for me is not so much whether such a system would work, but whether it will even be tried on a national scale.

If it is not, then we need to question if we have not asked too much of the managerial systems that most countries can create for rural development, including the mass media. Here we return to questions of politics, not in the sense of power structures within given national contexts (although important) but in the sense of the politics of bureaucratic structure that hinder the operation of very reasonable and needed systems of service delivery for the rural poor. What Hornik has done in this book is to move us along a path toward formulating a reasonable system based to a large extent on evaluation evidence from the field. The next stage for development communication may well be to concentrate its attention on implementation rather than on planning and on outcomes as this book has done.

Development Communication takes us a good way toward the goal of better development, and we hope the author and his students will be able to now show us how a more effective system can be created and then survive.

Available in hardback for US$35.95 plus shipping from Longman, Inc., 95 Church Street, White Plains, New York 10601-1505.

Reviewed by Emile McAnany, Professor in the Radio-TV-Film Department at the University of Texas, Austin, Texas, U.S.A. He is currently on sabbatical.

2

Distance Education in Asia and the Pacific Volumes I and II: Proceedings of the Regional Seminar on Distance Education

(Manila: Asian Development Bank, 1987) 1291 pp.

Although entitled the *Proceedings of the Regional Seminar on Distance Education*, which was held in Bangkok in late 1986, these two volumes go far beyond being a mere record of those discussions. They are an invaluable resource for anyone interested in distance education issues, approaches, technologies, and an in-depth picture of the state of distance education in Asia today.

Volume I presents a concise summary of the discussions that occurred at the conference, a list of the recommendations made by the participants, and the resource papers that were the basis for much of the discussion. Recurring themes that emerge throughout this volume are: the need for high quality instructional materials for pedagogical, motivational, and credibility purposes; the definite need for intensive and extensive planning before launching a large-scale distance education program; the need for special training of all staff members of a fledgling distance education institution; the value and limitations of a multimedia approach; and the complex issue of cost-effectiveness.

Featuring eight well-written papers, *Volume I* focuses on the process of distance education. The first, "Issues in Distance Education," by Dr. Motilal Sharma of the Asian Development Bank, points out that 63 percent of the world's population resides in the Asia-Pacific region, including over one billion young people under the age of fifteen. With the need for educational programs overwhelming the resources of the present education establishment, Dr. Sharma suggests that a distance education approach can meet part of this demand and may expand the educational opportunities available to all segments of society.

In "Growth and Scope of Distance Learning," Professor Ralph Smith of the British Open University outlines the types of needs that distance education may satisfy and how to organize the educational training process – from needs identification and course development through student support systems and assessment strategies.

"Distance Education in Asia and Pacific," by Dr. Mohammad Selim of Unesco, reviews the educational dynamics of the region, discusses the nature of the distance education alternative, and surveys the status of distance education efforts in sixteen Asian countries.

The final five papers in this volume present specific aspects of the distance education question. James Taylor of Australia's Darling Downs Institute of Advanced Education examines the "Application of Distance Education in Formal and Non-Formal Education." He describes the need for a multidisciplinary team approach to develop materials and outlines the scope and limitations of a mixed instructional media effort. In another article, "Planning and Management of Distance Education," G. Ram Reddy of the Indira Ghandi National Open University examines the planning methods and managerial structures of different types of distance education systems citing a number examples from the region.

The next few articles look at the technologies that have been or may become important to distance educators. In "Hardware and Software in Distance Education," Takashi Sakamoto of the Tokyo Institute of Technology reviews a wide range of technologies including radio, television, audio- and videotapes, videodisk, computers, and distribution systems.

The potential of hardware to support distance education programs is given additional attention in Mohan Sundara Rajan's article on "Satellite Applications in Distance Education Through Radio and TV." It reviews the state of satellite technology and the movement toward more powerful satellites and educational programs in India, Indonesia, and the South Pacific.

The last article in *Volume I* addresses the crucial financial issues: How can distance education be financed? Are distance education programs cost-effective? In "Financing and Cost-Effectiveness of Distance Education," Wichit Srisa-an draws upon his experience as rector of Thailand's Sukhothai Thammathirat Open University to present data from his institution and others in the region to answer these questions.

Volume II contains case studies from five countries – India, Indonesia, Pakistan, Korea, and Thailand. Twelve shorter papers survey distance education activities in Australia, Bangladesh, Bhutan, Burma, Fiji, Hong Kong, Japan, Malaysia, New Zealand, Papua New Guinea, Philippines, and Sri Lanka. These papers recount the development of a variety of distance teaching programs including correspondence schools, open learning systems at the primary, secondary, and tertiary levels, and satellite-delivered instruction. Some of the papers are refreshingly forthright in identifying the problems encountered and lessons learned the hard way. In addition to presenting a comprehensive summary of many of the distance education efforts undertaken in the Asia-Pacific region, the papers are an excellent resource for educators who are currently running or planning a distance education program.

The Asian Development Bank should be commended for having the foresight to go beyond the sponsorship of a conference by producing this valuable collection of resource papers.

Available upon request from the Information Office, Asian Development Bank, P.O. Box 789, Manila, Philippines.

Reviewed by Willard Shaw who was Chief Adviser to the Indonesian Distance Education Satellite System and currently is Program Coordinator of the A.I.D. Rural Satellite Program.

3

Measurement in Health Promotion and Protection,

European Series No. 22, edited by T. Abelin, Z. Brzezinski, and V. Carstairs, (Copenhagen: WHO Regional Office of Europe, 1987) 658 pp.

The need for accurate and easily understood measurement practices and reporting is critical in planning, implementation, and evaluation of health programs and activities. This was acknowledged when participants at the IXth International Scientific Meeting of the International Epidemiological Association, IEA, and WHO workshop recommended that another volume follow an earlier WHO publication, *Measurement of Levels of Health*.

This new book aims to provide a framework from which health planners and practitioners can operate. It establishes working definitions of the concepts of health, health promotion, and disease prevention; examines various methods of measurement; and presents examples and applications of previous measurement activities. The focus is on concepts and applications directed toward providing measurements of health rather than concentrating on mortality, morbidity, and other manifestations of ill health, as traditional measures of health have tended to do.

The book is divided into three sections. The first part introduces readers to the conceptual and methodological aspects of measurement in health and health promotion, and provides some essential groundwork for those with little or no experience in empirical research.

Part II begins with a basic discussion of the "what and how" of measurement. Individual articles cover measurement of health, measurement of health promotion and protection, and information strategy as a basis for measuring progress and programs toward health.

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Briefly Noted

by Pat Simons

■ The *Handbook for African Journalists* is a collection of articles on the fundamentals of journalism. Written by leaders in African journalism, each article covers a different aspect of journalism and includes a bibliography. Topics discussed include: journalism training in Africa, writing leads, news reporting, interviewing, identifying basic news sources, ethics, feature stories, editing, headlines, editorials, writing for radio, the legal aspects of journalism, photo journalism, press releases, sports reporting, and news agencies. The final section includes a glossary of mass media terms and a list of mass communication centers in Africa.

This concise collection of articles would be useful for mass communication students, beginning journalists in Africa and journalists seeking a basic reference guide to journalism in Africa. It is available from World Press Freedom Committee, c/o the Newspaper Center, P.O. Box 17407, Dulles Airport, Washington, D.C. 20041, U.S.A. or from Calliz Udofia, Itiaba Publishers, P.O. Box 404, Abak, Cross River State, Nigeria. Up to 10 copies free.

■ *Technologies for Management Information Systems in Primary Health Care* introduces health managers to the basic concepts and skills necessary for the development of management information systems in primary health care programs.

Focusing on managerial strategies for developing a new information system or modifying an existing one, the paper includes guidelines for determining the appropriateness of microcomputers in a system, selecting hardware and software, introducing microcomputers into the work environment, training personnel and managing technical assistance.

This paper is one of the issue papers in the *Information for Action* series prepared under the auspices of the World Federation of Public Health Associations for the Aga Khan Foundation and UNICEF. It is available free to developing countries from UNICEF, Division of Information and Public Affairs, UNICEF House #3, UN Plaza, New York, NY 10017, U.S.A.

■ To further documentation and bibliographic control of worldwide mass communication literature, John Lent has compiled *The Global Guide to Media and Communications*. This bibliography covers all regions of the world except the U.S. and includes citations for books, dissertations, monographs and some periodicals. It is arranged regionally with country-by-country subdivisions. Some of the regional sections are also divided topically. Although most of the materials are in English, numerous citations are in other languages. Some entries have been annotated.

The guide also includes a good list of general reference materials such as handbooks, directories, yearbooks, bibliographies and indices that cut across regions.

A useful research tool, the guide is available from K.G. Saur, Inc., 175 Fifth Avenue, New York, NY, 10010, U.S.A. US$70.

■ *Computers in Education: An Outline of Country Experiences* is one outcome of the Third Asian Seminar on Educational Technology (Tokyo, 26 September-2 October 1984). The paper describes developments in educational computing in Australia, China, India, Japan, the Philippines, Sri Lanka, and Thailand. An additional section describes Singapore's efforts to move toward high-technology-based industries and services.

Building on the outcomes of the Third Asian Seminar on Educational Technology an Experts Planning Meeting on the Use of Computers in Education was held in Bangkok from 2-7 December 1985. *Developing Computer Use in Education: Guidelines, Trends and Issues* is the result of this meeting. With the realization that computer-based technologies have made computer literacy and skills essential for accessing current and future information sources, countries must recognize the need to develop computer education programs. This paper's objective is to provide policy and decision makers with an overview of the trends and issues in computer education within the countries of the Asia and Pacific region, which can be used as a basis for the development of such programs. Current and future developments in computer education as well as considerations for the development of national policies on computer education are discussed.

Some of the policy issues educational planners must address include equity of access, the needs of special groups, the levels of education to receive priority, security and privacy, equipment obsolescence, software selection, ergonomics, the promotion of domestic industries and computer awareness in the overall community. A useful checklist of guidelines for selecting hardware is outlined and the development of software repositories to provide teachers with information and assistance is suggested.

The paper defines the four major barriers to implementing computer education programs as hardware acquisition, software suitability, teacher education, and support services and discusses their importance in respect to the development of national policies. A glossary of computer terminology is included.

Both papers are available from the Principal Regional Office of UNESCO for Asia and the Pacific, P.O. Box 1425, General Post Office, Bangkok 10500, Thailand. US$5.00 each.

■ The *ACCIS Guide to United Nations Information Sources on Food and Agriculture*, compiled by the Advisory Committee for the Co-ordination of Information Systems, is a directory of over 120 U.N. agencies that are sources of food and agriculture information. Because agricultural development encompasses a number of disciplines and is of such global importance, the guide lists a broad spectrum of UN agencies that collect and disseminate information on agriculture and food and related social and economic activities. CGIAR supported research centers are also included.

The information sources are arranged under the following subject headings: 1) Food and Agriculture Information Sources in

(*Continued on page 14*)

(**Checklist** *continued from page 9*)

Examples and applications of measurement techniques used in the field are covered in Part III, again, as they pertain to different populations, situations, and diseases. Nineteen cases are presented in which various health problems and populations were addressed and different measurement tools and evaluation processes were used. The cases are brief but to the point, providing extremely helpful recommendations and insights.

Chapter 12 is an excellent resource for those in search of instruments and charts to use in the field. Also included are easy-to-use charts for monitoring the nutritional status of children, a health profile questionnaire, and guidelines for the development of charts, scales, and possible applications. Excellent tables, statistics, and references provide valuable information and resources to the health planner, evaluator, or practitioner.

Measurement in Health Promotion and Protection is a valuable resource for people in health management and policy development, particularly those concerned with health promotion policies and their evaluation. ■

Available in softcover only from WHO Publications Center USA, 49 Sheridan Avenue, Albany, NY 12210 for US$50 or from WHO Distribution and Sales, 1211 Geneva 27, Switzerland for 80 Swiss francs.

Reviewed by Sharon Smith Elsayed, currently in the graduate program for Health Communication at the University of Maryland, College Park, Maryland, U.S.A.

Listening and Questioning: Two Ways to Improve Health Messages and Program Effectiveness

Communicating effective health messages is a difficult task given the complex and often technical nature of most health-related information. In recent years, marketing specialists have added new measurement and information-gathering tools to help design better health materials. Examples of two techniques, the focus group interview, and the pretest questionnaire, are given below to illustrate how these new tools differ in application and usefulness.

Listen Then Plan: A Focus Group Approach

by Judi Aubel

There is much talk among health education and communication planners about the need for programs to be more culturally relevant – to take into account the community's perspective. To date, however, health education programs often lack an understanding of the prevailing health beliefs and practices of the community. One way to gather this information is with a focus group. The term focus group comes from the field of marketing where it is used as a technique to elicit discussions from a small group of clients focusing on a proposed product. Sometimes called indepth group interviews, the focus group, in this context, is used to address this need for cultural relevance by providing initial community assessments to serve as the basis for the development of health education and communication programs.

Quantitative versus Qualitative

Most health sector planners normally associate a community study with survey research. Health planners and funders are particularly interested in studies that produce neat quantitative results. Problems associated with doing surveys are numerous, including the time and cost involved, and the uncertain validity of questionnaire answers because respondents often try to please the interviewer rather than to respond honestly.

Aside from the problems associated with actually conducting a survey, if the purpose is to understand a complex system of health-related beliefs, values, and practices, the highly structured quantitative survey is a limited tool. For example, a survey figure showing that 86 percent of targeted mothers do not use an oral rehydration solution (ORS) does not give the type of information needed to help planners decide how to encourage them to do so. In order to understand why mothers do or do not use ORS, what they perceive as the advantages and disadvantages of ORS, or what mixing or administering problems they are having, a qualitative data collection method such as the focus interview should be used.

Qualitative research uses open-ended techniques to collect detailed information on what the community thinks and does about a given health problem. While it varies more in content and is more difficult to analyze, qualitative research does give greater insight into a community's underlying health and illness systems.

The focus group approach is a semi-structured discussion of a predetermined subject of interest to researchers or program planners. It is an informal discussion between a small group of individuals led by a trained facilitator who poses open-ended questions to the group as a whole. A trained focus group facilitator encourages participants to respond individually as well as to discuss their ideas with group members. This atmosphere encourages participants to spontaneously and honestly share their knowledge and feelings about the topic.

A Tunisian Example

In 1986, Catholic Relief Services, in collaboration with the Tunisian Ministries of Health and Social Affairs, launched a Diarrheal Disease Management Project *(LAD: Lotte Anti-Diarrheique)* to educate mothers, train health personnel and to use mass communication in their activities.

One of the preliminary steps in the development of this three-year project was to carry out focus group discussions at the community level. The information collected in the focus groups was the starting point for the development of the three-pronged project.

Focus group discussions were conducted first with low-income mothers and grandmothers and second with fathers of young children. The objective was to understand their perceptions of diarrhea and dehydration, and their approach to treatment. The discussions took place in each of the seven cultural regions found in Tunisia, with female nutritionists as facilitators for the women's groups and male social workers for the fathers. In all cases, the group members participated enthusiastically in the discussions.

The information collected was rich with useful detail when compared to the findings of earlier quantitative studies done in Tunisia.

The focus groups found that the population studied had two distinct perceptions of the causes and treatment of diarrheal disease. Some causes were attributed to "scientific" factors such as poor hygiene; other causes were identified by parents as "metaphysical" in nature – such as the onset of diarrhea due to the flight of a particular type of bird over their child's crib. When a "scientific" problem arises, home remedies and formal health sector services are used. If sickness is attributed to personal beliefs, parents will use home remedies but are more likely to consult traditional health practitioners. Since the goal of the program was to change parents' behavior in feeding and treatment and not personal belief systems, these systems were not contradicted; the parents were simply advised to treat their childrens' diarrhea, whatever the attributed cause, with recommended liquids and appropriate dietary regimens.

Focus group participants used twenty-one different terms for diarrhea and dehydration, yet some of them did not know to use the term itself to describe the condition. It was important that health and social workers be familiar with and not openly reject local terms, and that families understand the danger that the symptoms of dehydration represent.

The use of focus group studies in the Tunisian Diarrheal Disease Management project produced information on community knowledge and local practices that proved invaluable in the development of project activities that were culturally relevant to the target population.

Judi Aubel, B.P. 3746 Dakar, Senegal, is a consulting health educator who gave technical assistance to the Tunisian Diarrheal Disease Management project for PRITECH.

DTCP Communication Courses

The Asian and Pacific Programme for Development Training and Communication Planning has announced its 1988 training courses for program managers and communication specialists. Topics to be covered include planning, management, supervision, evaluation, and training. For more information contact Dr. M. Khemmani, DTCP/UNDP, P.O. Box 2-147, 19 Phra Atit Road, Bangkok 10200, Thailand.

Preparing a Pretest Questionnaire

When you are preparing a message for a specific audience, you need to know beforehand if the message will appeal to those for whom it is designed and if it will be correctly understood. Pretesting with a small sample of your audience can help identify problems. Pretesting has become quite sophisticated over the past few decades as our understanding of what it can accomplish has grown. Subjects of importance for the professional test designer include the selection and number of respondents, preparation of interview guides, analysis of materials to be tested, training of the interviewers, and even the pretest setting. The following set of questions might be asked by an interviewer, and give a quick overview of the kinds of questions pretesting can help clarify. Naturally, the actual formulation of specific questions should reflect the vocabulary of the respondents and the specific materials being tested.

A Standard Pretesting Questionnaire

1. Main Idea Communication, and Comprehension

What was the main idea this message was trying to get across to you?

What does this message ask you to do?

In your opinion, was there anything in the message that was confusing?

Which of these phrases best describes the message?

________ Easy to understand
________ Difficult to understand

2. Likes and Dislikes

In your opinion, was there anything in particular that was worth remembering about the message?

What, if anything, did you particularly like about the message?

Was there anything in the message that you particularly disliked or that bothered you? If yes, what?

3. Believability

In your opinion, was there anything in the message that was difficult to believe? If yes, what?

Which of these phrases best describes how you feel about the message?

________ Believable
________ Not believable

4. Personal Relevance and Interest

In your opinion, what type of person was this message talking to?

Was it talking to...
________ Someone like you
________ Someone else, not you

Was it talking to...
________ All people
________ All people but especially (the selected audience)
________ Only (the target audience)

Which of these phrases best describes how you feel about the message? Was it...

________ Interesting
________ Not interesting
________ Informative
________ Not informative

Did you learn anything new about (health subject) from the message? If yes, what?

(*Continued on page 13*)

(*Questionnaire continued from page 12*)

5. **Other Audience Reactions**

Audience reactions to messages can be assessed using pairs of words or phrases or using a five-point scale. The following is an example of how this is done.

Listed below are several pairs of words or phrases with the numbers one to five between them. I would like you to indicate which number best describes how you feel about the message. The higher the number, the more you think the phrase on the right describes it. The lower the number, the more you think the phrase on the left describes it. You could also pick any number in between. Now consider each set of words. Please tell me which number best describes your reaction to the message.

Too Short	1	2	3	4	5	Too Long
Discouraging	1	2	3	4	5	Encouraging
Comforting	1	2	3	4	5	Alarming
Well Done	1	2	3	4	5	Poorly Done
Not Informative	1	2	3	4	5	Informative

Is there anything in the message that would bother or offend people you know?

____

____

6. **Impressions of Presenter**

Please select the one answer from each pair of phrases which describes your feelings about the presenter.

________ Believable
________ Not believable
________ Appropriate to the message
________ Not appropriate to the message
________ Gets the message across
________ Does not get the message across

This questionnaire was reprinted from "Pretesting in Health Communications," *Publication No. 84-1493, prepared by National Institutes of Health, National Cancer Institute, Bethesda, Maryland 20205 U.S.A.*

Surveys – A Different Picture

by Sharon Smith Elsayed

The idea of conducting a survey can bring with it some frightening images: extensive preparation, cumbersome and time-consuming data analysis, enormous target populations, and budgets to match. This overwhelming picture of the "typical" survey process understandably prevents many in development work from using survey methodologies; the obstacles to effective use of survey designs may seem to outweigh any readily apparent advantages.

But, suppose we were to approach surveys from a different perspective. Instead of looking first at the demands of a "typical" survey process which incorporates many of the above assumptions, let's begin by focusing on some general needs of development communication projects and how survey techniques can meet these needs; that is, how can they be used in audience research, for materials testing, program monitoring and finally, in summative analysis? Our focus will be on health projects, but the concepts are readily transferable to other areas of development.

Audience Testing

First on the agenda in planning a new program or intervention is building an understanding of the "target" population and the status of the problem which is to be addressed. Developmental research, often called formative research, is aimed at providing such background information from which strategies can then be formulated. A variety of designs using survey methodologies to serve this purpose include: sample surveys, intercept surveys, focus group discussions, in-depth interviews, ethnographies, and behavior observation.

Sample surveys collect data on a small portion of the audience you intend to investigate. The questionnaire on pages 12-13 is a good example of such a survey. KAP surveys (knowledge, attitudes, and practices) are another typical design used in developmental research.

A sample survey conducted in Madhya Pradesh, one of India's four lesser developed states, demonstrates such an effort to design a limited survey. The idea of using comic books to disseminate health information to rural populations had been proposed, but uncertainty existed as to the extent to which comic books, popular in urban areas, had filtered through to rural school children. In order to determine viability and design, the program planners needed to uncover the target audience's preknowledge of immunization, its visual literacy, and interest in story types.

Results from the survey proved to be invaluable to later planning; providing details about the population which greatly affected both message design and dissemination decisions (for more information about this survey, see *DCR* No. 59).

Materials Testing

Once the audience research has been conducted and the messages selected, materials are developed. The need to know if these materials and the selected strategies will work with the target population can be met by testing a smaller group similar to the target population to allow for immediate analysis. Unfortunately, there are numerous examples of materials or messages that were not pretested and, after much time, effort, and money, the strategies often failed.

To be successful, a test should be systematic – founded upon clear goals, carefully monitored, and consistently analyzed. For example, a picture to be used in rural Lesotho meant something very different when pretested than what the artist had intended. The artist had indicated that the

(*Continued on page 14*)

(**Smith Elsayed** *continued from page 13*)

couple in the picture was wealthy by putting them on a padded sofa. When the test group was asked "Are they happy?", several said "No, because the couple is sitting in a thorn bush." The lines that she had drawn to represent creases in the buttoned cloth were misinterpreted as thorns.

Between the Start and the Finish

Program monitoring does not actually constitute a separate stage of the intervention, but rather part of the ongoing observation process. No program will be perfect, no matter how carefully designed. Use of survey techniques for early detection of flaws, oversights, and unanticipated changes can drastically affect the final outcome of a program.

Monitoring activities can be built into the program plan to provide regular feedback on progress and problems. These could include distribution systems for products and materials, internal administration and adherence to work schedules and budgets, and audience levels of knowledge, acceptance, and practices. They can also be short term and directed at a specific problem. For example, the immunization delivery service in Ecuador evidenced a continuing problem. Many parents were not returning to clinics to complete the full series of vaccinations for their children – a common occurrence in many countries. Communication and behavior specialists observed the behavior in several rural clinics, hoping that direct monitoring of the parents at the clinics would reveal reasons for this situation.

The somewhat surprising conclusion of the study was that mothers were reasonably motivated to travel the difficult distances to the clinics for immunizations, but the health workers were not following norms and were not sufficiently motivated to provide accurate information and positive reinforcement. The study was initially focused on mother's motivations; results indicated that follow-up efforts should really be focused on motivation and education of the health workers.

Were We Successful?

The final evaluation of a project often presents a tremendous challenge. How to measure and quantify what has been achieved can be a formidable task, but may be a requirement for many programs.

Any of the survey techniques mentioned earlier can be useful, but it is here that the large-scale survey is most common. Surveys conducted both before and after a program allow for measurement of details regarding a group's knowledge, attitudes, and practices related to the targeted problem. The "after" survey also ascertains exposure to media channels, messages, and subsequent impact.

However, the type of quantitative data resulting from such a large-scale survey may be insufficient to provide a balanced and insightful analysis of accomplishments. An accompanying observational study, which is of a more qualitative nature, can add depth to the numbers supplied by a sample or even an intercept survey. It is also useful in testing the validity of self-reported data, by allowing the observer to make additions to previous data from a more detailed participant response.

Surveys can fit the "typical" picture. They can be large, expensive, time-consuming, and even yield data that may be useless. But plan carefully. Don't assume that your needs must be adapted to a survey. Rather, you must make the survey design fit your needs by choosing methods and techniques that meet the objectives and constraints of your project.

Project plans and final evaluations of development projects provide excellent resources on survey design and implementation. The following texts may also be of assistance.

1. *Survey Research Methods*, E.R. Babbie, Wadsworth Publishing Company, Inc., Belmont, California, U.S.A.(1973).
2. *Survey Questions: Handcrafting the Standardized Questionnaire*, J.M. Converse & S. Presser, SAGE Publications, Inc., Newbury Park, California, U.S.A. (1986).
3. *Focus Group Interviews: A Reader*, J.B. Higginbotham & K.K. Cox, American Marketing Association, Chicago, Illinois, U.S.A. (1979).
4. *Research Methods: Issues and Insights*, B.J. Franklin & H.W.Osborne, Wadsworth Publishing Company, Inc., Belmont, California, U.S.A. (1971).

Sharon Smith Elsayed was formerly with the Peace Fellowship Project for Egypt (AMIDEAST) and the PRITECH Project (Management Sciences for Health).

(**Briefly Noted** *continued from page 10*)

General; 2) Plant Production and Protection; 3) Animal Production and Health; 4) Food and Nutrition; 5) Land and Water Development and Natural Resources; 6) Economic and Social Development; 7) Trade and Commodities; 8) Agro-Industries and Industrial Development; 9) Fisheries and Aquaculture; and 10) Statistics.

Libraries, documentation centers, clearinghouses, document collections, and computer databases are among the sources noted. Each entry includes a description of the agency, defines the scope of information and types of resources available, and lists serial publications such as directories, yearbooks or newsletters published by the agency. The outputs, both printed and on magnetic tape, are given for computer databases that are not accessible through public networks.

Addresses of international organizations, addresses of database hosts, and national contact addresses for specific agencies as well as depository libraries are listed in the annexes.

The guide is thorough, well-organized, and easy to read and use. Practioners, researchers, educators, and librarians would all find this an invaluable guide to the sources of agriculture information within the UN system.

It can be purchased from authorized FAO sales agents or directly from Distribution and Sales Section, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy. (Order #F3145). US$13.50.

Another extremely useful FAO publication is entitled *Forestry Extension Methods*. This paper is a careful discussion of forestry extension activities in the field. Assuming that the reader has some knowledge of forestry, the authors describe a number of extension methods that can be used to present appropriate forestry activities to a community.

Communication, the authors say, lies at the core of any extension program. After a brief description of the communication process the paper continues with an excellent discussion of the various means of communication that may be applicable in a particular extension project. Audiovisual aids, including projected and non-projected aids, tape recorders, video recorders, puppets, music, plays, mobile units, display visuals, and extension literature are detailed for use in more formal settings. Individual and group extension methods such as home visits, telephone calls, group meetings, demonstrations, field days, panel discussions, and extension schools are also discussed. Additionally, mass extension methods ranging from circular letters, newspapers, posters, pamphlets, and exhibits to radio and television are outlined.

Each method or media presented includes a description of the media, guidelines for its use, technical considerations and a list of advantages or disadvantages that may apply in a given situation. These detailed and balanced discussions would prove useful to project planners and field workers involved with forestry extension as well as with other types of development projects.

Another section of the book details planning, implementing, monitoring, and evaluating extension campaigns. The paper concludes with a discussion on organizing, managing, financing, conducting and evaluating training programs.

Written by D. Sim and H.A. Hilmi, this is FAO Forestry Paper 80 and is available from FAO Sales Agents or directly from Rome (see above address). (Order #F3149). US$15.75.

Pat Simons is the Information Specialist in the Clearinghouse.

In-country Certification for Swaziland Communicators

by Allan Kulakow

On December 4, 1987, twenty-two Swazi communicators received academic certificates for having completed six courses in development communications taught in Swaziland by California's San Diego State University. Formal graduation exercises were held on the campus of the University of Swaziland where some of the courses were held.

This is the first development communications program ever offered by an American university in a developing country. The two-year accredited program offered the students courses in how to plan the development communication process, radio scriptwriting and production, and media research and evaluation. Each course, when successfully completed, gives the students three credits at San Diego State University.

The program was developed as part of the Swaziland Development Communications Project funded by the U.S. Agency for International Development(A.I.D.)/Swaziland and implemented by the Academy for Educational Development. The purpose of the project is to develop the communication skills of Swazi professionals who work in such Ministries as Agriculture and Education, and in other organizations where communications are used. Because of radio's extensive coverage in Swaziland, program production is a principal focus of the project's training.

Equally important is the strengthening of the skills of Swaziland Broadcasting Services personnel who work closely with the various development ministries. In fact, the Swaziland Development Communications Project is housed in the Swaziland Broadcasting Services facilities.

The courses are offered in an intensive three-week, seven-hour-a-day format, followed by a practicum related to each student's actual professional responsibilities. Supplementing the coursework are on-the-job tutorials given by radio experts and workshops conducted by Project personnel.

An enthusiastic demand for continuing the certification program led to the formation of a second class – "the Class of 1989." A similar program is being offered by San Diego State in Lesotho as part of the Basic and Non-Formal Education Support (BANFES) project, also funded by A.I.D. In most cases, the courses are scheduled so the visiting instructor can teach the course first in Swaziland and then in Lesotho.

Graduates of the first development communications course assemble for their class picture after receiving their certificates of completion.

The Swaziland Development Communications Project continues to address and respond to identified training needs. Ambitious program plans for 1988 will result in increased levels of participation by the Swazi population in a variety of development communication activities.

For more information about this project write to:

Polly McLean, % USAID, P.O. Box 750,
Mbabane, Swaziland.

Allan Kulakow is Director of African Programs for the Academy for Educational Development.

Cornell International Agriculture Summer Courses

In conjunction with its Summer Courses in International Agriculture series running June through September 1988, the International Agriculture Program at Cornell University is offering two workshops. From July 5-22, "Video Communication I: Basic Concepts and Skills" examines the use of the portapac video and production planning for simple video presentations. July 25-August 12, "Video Communication II: Training and Development Applications" covers advanced concepts of video application including planning research, production, design, and evaluation for training modules. Both workshops are designed for professionals working in educational or development environments particularly in Third World settings.

For registration information contact Mr. James E. Haldeman, Training Officer, International Agricultural Program, P.O. Box 16, Roberts Hall, Cornell University, Ithaca, New York 14853-5901, U.S.A.

INTERPAKS Short Courses Announced

The International Program for Agricultural Knowledge Systems (INTERPAKS) is offering the following short courses in 1988. "Training of Trainers for Agricultural and Rural Development" will be held June 6 to July 1, 1988. "Organization and Management of Agricultural Extension Systems: A New Look At Knowledge Transfer" will be held September 5 to September 30, 1988.

For enrollment information contact John W. Santas, INTERPAKS Training Officer, University of Illinois, 113 Mumford Hall, 1301 West Gregory Drive, Urbana, Illinois 61801, U.S.A.

Un Nuevo Centro Uruguayo Dedicado a la Comunicación

por Victor Bjorgan

En el Uruguay existen en la actualidad aproximadamente veinte instituciones dedicadas a estudios de temas sociales y entre ellas, el CIIDU, un Centro de Información, Investigación y Documentación creado por un grupo de investigadores, técnicos, docentes y periodistas, animados en el propósito de contribuír a la recuperación y consolidación de la democracia.

El Centro de Información, Investigación y Documentación del Uruguay, que así se denomina, lleva actualmente adelante varios programas, como por ejemplo el denominado SERCOM, consistente en una Red Informativa para Organizaciones no-gubernamentales; un Servicio de Información para el Desarrollo que constituye una verdadera Agencia de Noticias que sirve de apoyo a los medios de comunicación del interior del país; el Programa MUJER, que comprende un proyecto de investigación y difusión de la situación de la mujer en el Uruguay; trabaja tambien en un Banco de Datos, consistente en un servicio de documentación computarizado para organizaciones no-gubernamentales y por último, el Programa Comunicación para el Desarrollo, programa consistente en la capacitación de comunicadores radiofónicos para el desarrollo, en el interior del Úruguay.

Es de destacar que este último proyecto se cumple con el apoyo técnico y financiero de la Fundación Friedrich Naumann de Alemania Federal y su duración es de cuatro años, debiendo culminar en 1989.

El CIIDU cuenta con recursos humanos de gran nivel (profesores, investigadores, abogados, periodistas y técnicos) que, en función de equipo, permiten la elaboración e investigación de temas de interés social de gran importancia que luego se trasuntan en proyectos o programas a ejecutar.

Crearon Cuatro Centros Productores de Noticias

Se han creado cuatro Centros Productores de Programas en las ciudades de Melo (fronteriza con Brasil), en Colonia (litoral sur), Salto (litoral norte), y Tacuarembó (centro norte del país).

Los Centros ofrecen cursos de capacitación y seminarios, donde participan periodistas de medios radiales, prensa escrita y de televisión además de personas que se desempeñan en actividades de comunicación y relaciones públicas, caso de asociaciones gremiales, cooperativas, etc.

Servicio de Audio-visuales

Otros de los departamentos del CIIDU tienen que ver con el Servicio de Audio-visuales, orientado a promover un sistema de comunicación, favoreciendo la consolidación de la democracia.

Basado en métodos didácticos este servicio permite la filmación de videos, tanto documentales como films, consultorias, marketing publicitario, información relacionada al servicio de televisión, campañas publicitarias, organización de eventos científicos-culturales, relaciones públicas y capacitación técnica en Radio y TV.

Informática y Biotecnología para el Desarrollo Nacional

Por otra parte el CIIDU promueve el conocimiento y la aplicación de los adelantos científicos y tecnológicos necesarios para el desarrollo nacional, a través de sus programas de Informática y Biotecnología, para los que cuentan con modernos equipos de computación y personal calificado.

El personal diseña "software específico" para base de datos sobre gerencia pequeña y mediana empresa agrícola y agroindustrial, biotecnología e integración regional, proyectos de Banco de Datos para los sectores productivos y organizaciones del área no-gubernamental.

En la parte internacional se integran temas que tienen que ver con Integración regional y otros. Las informaciones llegan al Banco de Datos a través de publicaciones especializadas y de los medios de prensa del país, servicio éste que se brinda a las organizaciones no-gubernamentales, estudiantes y a investigadores. El Banco de Datos del CIIDU procesa promedialmente unas 2000 informaciones al año.

La Mujer y su Programa

El programa Mujer que encara actualmente el CIIDU tiene por objetivo la investigación real y completa de la situación de la mujer en el Uruguay y en los campos social, político y económico y la posterior divulgación de los resultados.

El primer proyecto a que se abocó el Departamento fue el de la Campaña de Esclarecimiento de los Derechos de la Mujer en el Uruguay. Encara sus acciones a través de las áreas de Investicación, Trabajo de Campo y Comunicación.

El procesamiento de estos índices, su evaluación y almacenamiento en un verdadero banco de datos mediante una avanzada tecnología, permiten arribar a estadísticas que puedan ser utilizadas por aquellos grupos que estudien el tema de la condicion de la mujer y requieran la información. Asimismo los resultados de esta evaluacion serán divulgados a través de publicaciones, boletines o informes.

La comunicación se viabiliza a través del Servicio de Comunicación del CIIDU rescatando la información internacional y canalizando las noticias nacionales referidas a la mujer en envios diarios al interior del país, de este boletín para la Mujer editado periodicamente y de diversas emisiones radiales.

La mayoria de las actividades del CIIDU están relacionadas con la comunicación, y es la única institución no-gubernamental del Uruguay dedicado a los medios de comunicación y a los comunicadores, lo que constituye un punto de destaque para un Centro de Estudios de reciente creación.

Para mayor información sobre los programas del CIIDU comuníquese con Victor Bjorgan, Director Ejecutivo, CIIDU, Av. 18 de Julio 1377, Montevideo, Uruguay. ■

Article Summary

There is a new institution in Uruguay whose purpose is to strengthen the country's democratic processes. The Center for Information, Research and Documentation (CIIDU), founded by a group of researchers, educators, and journalists, has a number of programmatic areas aimed at stimulating information access and local participation.

Four news production centers have been established to train press, radio, and television personnel, and to encourage their collaboration with local organizations such as unions and cooperatives. There is an audiovisual unit that will provide such services as film coverage of cultural or scientific events, or the development of publicity campaigns. Through a database which is being developed and made available, CIIDU encourages the application of advances in biotechnology, particularly for the improvement of the agricultural sector. A campaign on the rights of women was an early effort of CIIDU's Women's Research Project, that is developing a database of statistics on Uruguayan women.

The focus of CIIDU's activities is on communication channels and how to use them for social service. Contact Victor Bjorgan, CIIDU's director at the address above for further information. ■

Development Communication Report
Clearinghouse On Development Communication

1988/2
No.61

Acknowledging the growing number of requests for information on computer applications for developing countries, **Development Communication Report** ***presents four articles, with assistance from Gary Theisen of the Bureau for Science and Technology, Office of Education, A.I.D. These articles address the issues of computer modeling and planning, and their current and potential applications in developing nations.*** **DCR** ***would like to thank Mr. Theisen and his fellow contributors for preparing these timely and informative articles. (A glossary is included to assist readers with some of the computer terminology used in these articles. An asterisk (*) identifies words included in the glossary.)***

Computer Technology: Models and Educational Development

by Gary Theisen

Decision-making is one of the most frequent and yet difficult tasks engaged in by leaders. Often, problems arise unexpectedly and solutions must be found quickly - with or without the benefit of supporting data. But, recent developments in computer hardware* and software* technology provide quick access to information that can help people make better-informed decisions. Policy formation and decision-making are influenced by a host of political, social, and economic factors. Issues decided without the benefit of empirical data are not necessarily irrational; even the most blatant political agendas are rational to the parties who stand to benefit from them.

'While the application of computer technology to educational planning and management does not ensure that decisions will be "better" or that policies will automatically reflect the findings of an empirical analysis of education systems, it helps in a number of important ways. Computer technology helps to *identify problems* rather than to *establish priorities* – the assumption here being that computer technology applied to planning and decision-making allows quick access to current information which is valued, and will be used by policy-making officials.

What, then, can it do to promote development in the education sector? Computer technology will benefit education in three ways: by facilitating planning, by improving system efficiency, and by enhancing system quality. When educational data is collected, analyzed, and reported in a timely, issue-oriented fashion, policymakers have descriptive data to inform their decisions, a summary of cost benefits associated with potential actions, and a selection of alternative policy and programmatic options.

While policy decisions might not correspond with the empirically based conclusions that the analysis would indicate, the process of evaluating and weighing alternatives that policymakers must go through makes clear and even strengthens the logic and strategies used to arrive at the final policy decisions.

Educational Planning

With nearly 20 percent of many developing countries' national budgets allocated to the education sector, even marginal errors in estimating capital and recurrent costs associated with education can have enormous economic and political impact. Estimating the human and fiscal resources needed to build, staff, and equip schools requires data on population growth, infant mortality, enrollment targets, and salary structures. Estimates of the expected number of students and costs associated with their enrollment can be made by combining existing and projected data. The impact of shifting resource allocations and of varying growth rates can be simulated, and alternatives can be weighted based on political and economic constraints.

(Continued on page 2)

Family Planning Uses Traditional Theater in Mali

by Joan Schubert

An ordinary day begins in the courtyard of a simple household in the outskirts of Bamako, Mali. Ayowa, one of Padé's two wives, gathers her many children about her as she patiently ladles a meager portion of breakfast gruel to each from a large bowl. Across the way, Padé's other wife, Séra, decides that Ayowa's children have taken more than their fair share. One thing leads to another, and soon dishes are flying and arms are raised to strike as children scurry for cover. Padé appears just in time to break up the fight. After briefly scolding the wives, he leaves for work shaking his head in dismay. The two women withdraw to their separate corners to sulk.

This domestic drama was the opening scene of a theatrical improvisation form known in Malian tradition as *Koteba*. In a creative blending of modern technology with Malian cultural heritage, the story of Padé and his two quarreling wives was videotaped for television and used as a vehicle to present in an entertaining fashion the advantages of family planning through the use of modern contraceptive methods.

Family Planning in Mali

Family planning services have been available in Mali for more than a decade. Although there is no official population policy, the Malian government was the first of the sub-Saharan francophone countries to support family planning services as a means of reducing the high levels of mortality and morbidity among women and children. The Malian Ministry of Health reports that family planning services are currently available in 54 clinics nationwide – primarily in urban areas and major district capitals. At the same time, it is estimated that only about one percent of the population practices a modern method of contraception.

(Continued on page 16)

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

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Development Communication Report, **published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.**

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

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Academy for Educational Development

(Theisen *from page 1*)

Using data to make projections fosters planning in two ways. First, by testing and modeling* different assumptions about resources and population characteristics, a planner can estimate what the educational system of the country might look like in a given number of years and then project what it will cost to develop this educational profile. Second, a planner can start with a desired set of targets (enrollment or resource commitments, for example) and use the model to do "backward" planning to estimate annual requirements needed to achieve the stated objective. In either case, an empirical reality has been introduced into the planning process. Although planning of this nature is not new, the flexibility and low cost of microcomputer technology coupled with innovative developments in software now make these planning capabilities more readily available, particularly in developing countries.

The Efficiency Factor

Annual repetition and dropout rates exceed 15 percent in many developing country school systems, and completion rates for the primary cycle are frequently less than 40 percent. Hence, some Grade-one children will be denied access to overcrowded classrooms whereas at other levels, due to dropouts, there will be room for students to be accepted. In addition, some classes will not have teachers because regional or national plans did not accurately anticipate enrollment growth rates or teacher availability.

Neither projection models nor management information systems (MIS)* are new phenomena, but until recently only expensive centralized computers had the capacity to store large volumes of data required to describe education systems. Because data compilation at the regional and district levels is still largely done by hand it is subject to error. However, with the introduction of inexpensive optical scanners and hard-disk computer technology, more accurate and rapid mechanical reading and storage of data is possible. With the introduction of an efficient management information system, statistical reporting and presentation can be standardized and integrated across educational district boundaries with relative ease.

The result is a more accurate and timely identification of existing resources and diagnosis of future needs. Regional and national planners can better anticipate building and instructional material requirements, more effectively plan teacher placements, and more efficiently estimate inequities in learning opportunities. Most importantly, the speed with which enrollment information can be collected and analyzed enables planners to design appropriate intervention strategies that can be quickly implemented and targeted to reduce the number of dropouts and repeaters.

Cross-Sectoral Linkages

Education is a necessary prerequisite for growth-oriented governments and is equally essential for progress in agriculture, health, nutrition, and employment generation. Research-generated knowledge, microcomputer technology, and advances in software design now permit analysts to model the impact of educational development based on changes in other sectors. For example, by measuring the increases in agricultural productivity caused by increasing education levels in a country, it is possible to estimate what effect this change in productivity might have on nutrition, and subsequently, on infant mortality. Infant mortality, in turn, has a direct bearing on the number of children requiring schooling.

The number of sectors that can be potentially included in models of this type is limited only by our understanding of the linkages among the sectors and the number of interactions an analyst is willing to entertain. The more complicated the computer model, the more tentative the conclusions because of the greater number of assumptions built into the logic of the equations. The importance of modeling cross-sectoral linkages to education lies less in the statistical information generated from them than in the comprehensive, analytic process that unifies strategic thinking about development into an integrated, holistic framework.

Implications for the Future

Computer technology and modeling are not panaceas for problems in the development of education in developing countries. They do not provide answers or recommend solutions to planning, efficiency or quality issues. Computers and modeling software are *means* to a better understanding of the costs, benefits, and associated tradeoffs tied to policy options and alternative decisions. The great contribution of computer technology to this process is that it can make the projected impact of various factors accessible to more people. The efficacy of decisionmakers' final policy decisions rests on the quality of the initial information that is used to develop policy options and on the acumen of those making the decisions. ■

Gary Theisen is the Chief Technical Officer for the BRIDGES project, and has worked on both education development problems and planning issues in numerous countries around the world.

Simulations for Policy Making in Education

by Noel McGinn

Imagine this situation: a minister of education returns from an international meeting on policy innovations with a list of new ideas. She enthusiastically tells her directors what she has learned. The more timid of them hold back – they are concerned that implementation of the new policies will cost too much, or that the system does not have the teachers to carry them out. Her planner offers to develop a simulation that can project what the new programs would cost and how many teachers will be needed. "We can know by next week whether the idea is feasible" he claims.

Simulating Reality

Simulation refers to the imitation of reality. In this case the reality is the operation of an education system, and the imitation requires construction of a model of the system that approximates its features or concerns. Operation of the model then simulates the operation of the system. All simulations have underlying models, but only those models that can imitate the operation of a system are considered simulations.

A simulation is a means for communicating knowledge of and hypotheses about the structure and process of any system. A model represents a set of assumptions (based on a mixture of data and theory) about the essential features and operation of the system; the simulation is a means of persuading others of the validity and utility of those assumptions.

Simulations can be excellent teaching devices. Students can experiment with different sets of data and different policies and programs and observe likely effects on the performance of the system, all within a short period of time. New data can be entered and important variables can be changed to simulate a different education system.

Simulations can be very helpful to policymakers who are dissatisfied with the current performance of an education system but are unwilling to risk the costs of experimentation. A good simulation can help policymakers anticipate the likely outcomes of alternative choices, as well as their probable financial costs. Some simulation methods can even suggest the likely political risks of alternative policy options.

Unlike forecasting methods in which the emphasis is on predicting what will happen if all assumptions are confirmed, simulation methods are used to generate information about other outcomes and to suggest what could be made to happen if new assumptions are introduced. Therefore, in situations of higher uncertainty or greater freedom of action, simulation is preferable over forecasting. Such situations call for creative thinking about alternative futures.

The use of simulation has a long history. The first Phoenician who carved a model of a new type of boat and tested it in a pond was simulating the likely seaworthiness of the design without risking human lives. The first Chinese ruler who asked advisers to recommend a strategy to repel a threatening invader preceded today's use of role playing and scenario construction as simulation methods. The game of chess has been described as a simulation of the social structure of medieval Europe.

> *A simulation is a means for communicating knowledge of and hypotheses about the structure and process of any system.*

Methods of Simulation

A simulation has two basic elements: a model or representation of the particular reality in question; and a set of procedures or rules that permit a person to interact with or operate the model. The model used in a simulation must be capable of assuming different values selected by the user to represent policy choices.

Models are only representations of reality – their very usefulness comes from reducing its complexity. This is accomplished in several ways; the most common models are mathematical and algorithmic*. One or more equations are used to express the relationships between variables*; users enter and assign numerical values to variables to represent choices from among policy options, or change assumptions about the conditions in which the education system might operate in the future. The model develops a solution by indicating the likely outcome of the policy choices or changes in assumptions; computers are essential for the operation of such mathematical models.

Other simulations, such as those that require participants to solve administrative problems or to act out roles in a given situation, are based on heuristic* models in which some relationships are specified in advance, while others are developed by the participants' actions. These kinds of simulations are preferred in training for complex situations with a high degree of uncertainty. Simulations of this type, in which individuals compete against each other or a set of criteria, are called games*. Another article in this issue by R. Scott Moreland describes the use of simulation games used in the population and education fields.

A Mathematical Simulation Model[1]

One example of a mathematical model for policy choices was developed by Schiefelbein for use in planning the educational reform of Chile.[2] In this simulation, users set the goals to be achieved by the education system (such as level of enrollment), specify resource constraints (both human and fiscal), and then choose levels of spending on variables such as teaching training, school construction, or the creation of new teacher positions. The model then calculates how much of each goal can be achieved within the constraints. At the time this model was originally developed (1965), computing was expensive and time-consuming. The model had 80 variables and 196 equations and required considerable correction and adjustment before it was operational, making development costs high; a single run of the model took several hours. The cost discouraged users from playing with different assumptions or choices. The model required expert knowledge of the computer in order to insert data, and results were presented in a way that required a technician's interpretation. As a result, the full benefits of this model were not realized by policymakers.

Interactive Simulation Models

Although the number of mathematical models developed for educational planning in developing countries is large[3], most are so technically complex as to be of limited use to policymakers. Until the appearance of microcomputers, development costs made prohibitive the construction of interactive simulation models in which a non-technical user could ask questions of or respond to questions asked by the simulation program.

An example of an early interactive simulation for a developing country is one designed to project future enrollments and total costs of the primary and secondary school system, of Mexico.[4] Users could vary assumptions about student flow rates (promotion, repetition) or choose among policy options described in the text. The simulation was used to alert educational planners to the relative sensitivity of enrollments to changes in repetition or dropout rates.

(*Continued on page 4*)

Degree Opportunity in Development Communication

It is particularly encouraging to note the growing recognition communication is receiving in academic institutions in the Third World. This is a positive and important development in the institutionalization of development communication as a field of research and study and more clearly defines its role in social development initiatives. A case in point is the Centre for Development Communication at Gujarat University, Ahmedabad, India, which is now offering a two-year master's degree in Development Communication. Areas of study in the program include the process of development and the role of communication in Indian society, specific national development issues and the role of communication in them, and skills in preparing communication materials for print, radio, and TV along with a better understanding of alternative media applications. Practical exercises have been created to facilitate skills development in these areas.

For details and enrollment information, contact the Centre for Development Communication, Guru Nanak Bhavan, Gujarat University, Ahmedabad-380 009, India. Telephone 407481.

Spanish and French Profiles Available

The Clearinghouse now has available, in Spanish and French, sets of *Project Profiles*.

These are minicase studies of projects throughout the world, in various sectors, that use communication media in their implementation. Sets are available at no cost for developing countries, $US5 elsewhere.

To order the new *Profiles*, write to Clearinghouse on Development Communication, 1255 23rd Street, N.W., Washington, D.C. 20037, USA.

(**McGinn** *from page 3*)

Another simulation, the Education and Demographic Simulation Model (EDSIM), was designed to improve understanding of the interaction between population growth and education in developing countries.[5] The model takes population data and projects enrollments using official dropout and repeater rates by level and sex. Projections can be displayed in tabular and graphic form.

A more recent enrollment projection simulation is the System for Tracking Educational Progress (STEP). This simulation calculates promotion and repetition rates using data on enrollments by age and grade; it projects enrollments for as many years forward as the user desires; and it computes a series of internal efficiency measures.[6]

Off-the-shelf Applications Packages

The writing of mathematical models has been made much easier in recent years by improvements in off-the-shelf microcomputer software applications packages. These include spreadsheets and databases and others. Examples of simulations written with a spreadsheet* software package are, the *Economies in Curricular Choice Model*[7] and the *Educational Finance Simulation Model*,[8] both written in Lotus 1-2-3. The first allows users to simulate the effect on demand for and cost of teachers when there are changes in schedules and the amount of time assigned to various secondary school subjects.

The *Educational Finance* model allows users to see effects on enrollments and staffing by varying assumptions about levels and rates of growth of finance, student flow rates, costs, and teacher turnover. Both models are sufficiently complex so that users can construct scenarios that simulate a broader range of issues than can be described here.

In some simulations the education system is part of a larger social system. For example, the *Bachue-International, Long-Term Simulation Demo-Economic Model* contains a module that describes the projected economic production of school-leavers at various levels of attainment. The model is designed to study the long-term relationship between population and economic processes.[9]

The rich complexity of these simulations highlights a critical issue in the development of simulations for policymakers. Most simulations that use spreadsheets and other packages and those that are written in programming languages require some technical expertise to operate the simulation. They cannot be used by a policymaker who has not been trained how to use the microcomputer and the particular software package. Users must approach the simulation with prepared questions.

Not yet available is a simulation for developing countries that is sufficiently complex to be interesting and useful, yet designed for policymakers' direct use: they must still rely on their planners. The next generation of simulation models should be designed to permit policymakers to use the model without being technical experts. ■

Footnotes:

[1] This article refers only to simulations for education systems in developing countries. There are simulations of all kinds for other parts of the world. See *The Guide to Simulations/Games for Education and Training*, by Robert E. Horn and Anne Cleaves, Eds., 4th Edition, 1985. Hardcover, US$49.95 plus shipping. Order from Sage Publications, P.O. Box 5084, Newbury Park, California 91359, U.S.A.

[2] Schiefelbein, Ernesto, and Russell G. Davis, *Development of Educational Planning Models and Application in the Chilean School Reform*, Lexington, Massachusetts: Lexington Books, 1974. (Out of Print)

[3] At least 19 different models had been developed in Mexico by 1980. See Adrian Castellanos, *Estado actual del conocimiento de simulatión del sistema educativo mexicano*, México: Fundación Javier Barros Sierra, 1980.

[4] McGinn, Noel, Eduardo Rivera, and Adrian Castellanos, "El sistema educativo mexicano (un modelo de simulacion de escenarios)," *Revista Latinoamericana de Estudios Educativos*, XI:3 (1981), 33-73.

[5] The Futures Group, *EDSIM: Education and Demographic Simulation Model: Final Report*, submitted to Division of Human Resources, Office of Policy Development and Program Review, USAID, Washington, D.C., 1985.

[6] Basic Research and Implementation for Developing Education Systems (BRIDGES) Project, 452 Gutman Library, Harvard University, Cambridge, Massachusetts, U.S.A.

[7] Nazareth, Anita *The Economies in Curricular Choice (ECC) Model*, World Bank, Washington, D.C.,: World Bank, 1986.(Out of Print)

[8] Zymelman, Manuel, *The Educational Finance Simulation Model*, World Bank, 1987. US$23.00 plus shipping. Order from the World Bank Book Store, 1818 H Street., N.W., Washington, D.C. 20433.

[9] Described in IBM, *The Guide to Software for Developing Countries*, 1985. Order from: Communications and External Programs Manager, IBM Area South, 190 Avenue Charles de Gaulle, 92523 Neuilly sur Seine, France.

Noel McGinn is director and principal investigator of the BRIDGES Project at the Harvard Institute for International Development, and a professor at the Graduate School of Education at Harvard University, Cambridge, Massachusetts.

Projection Models in Educational Planning

by Luis Crouch

One of the most basic aspects of planning for educational investment is forecasting demand for places in the educational system and associated resource requirements and costs. Without knowing the numbers of students that can be expected to go through an educational system, educational planners and policymaker cannot persuasively lobby for investment allocations to the educational sector from the national budget. At the same time, without a formal method for assessing the financial impact of political or social commitments such as "universal education by the year 2000," it is hard for education policymakers to internally debate the likelihood of being able to fulfill such commitments. Consequently, education planners have always been interested in methods of projecting enrollment and investment needs.

History

Various international organizations have historically responded to this need by attempting to provide both methodological guidance and computer packages to planning agencies in developing countries. By sponsoring planning exercises in various countries, UNESCO, for example, has been a leading institution in the development and publication of methods for education planning. Some of its manuals have become standard reference works in this field. Similarly, the World Bank and USAID have contributed in major ways to the development of methods and computer packages for enrollment and cost forecasting. Other international organizations, such as the International Labor Organization, the InterAmerican Development Bank, and the Organization for Economic Cooperation and Development have contributed more sporadically to these efforts. Finally, some developing countries have embarked on the development of computer packages for these purposes.

But because educational projections require a great deal of computation, until the advent of microcomputers*, the models and packages were to varying degrees, examples of "inappropriate technology" for most developing countries. Models that required the use of mainframe* computers contributed to mystifying the process of enrollment and cost projections. Educational planners had access to the models only through computer technicians. In addition, planners had to compete against payroll processing for scarce computer time.

Educational Projection Models

Educational projection models vary considerably in the types of data they require and information they generate, completeness and complexity of model structure, methodology, and computer implementation.

Appropriate data can be as simple as a few historical years of population and total primary enrollment data, together with a given population projection. On the other hand, some models require many years of data on enrollment by grade and age, repetition and dropout data, basic demographic data such as fertility and mortality expectations, historical data on recurrent costs and capital investments, and teacher salary scales and qualification goals.

Simple to Complex

The information produced by the projection model can range from simple total primary enrollment projections to projections of enrollment by age, grade, and sex; projections of the relevant measures of access to and internal efficiency of an educational system (gross and net enrollment rates, primary completion rate, student-years per graduate), projections of teacher supply and demand, and recurrent costs and investment needs.

Educational projection models can be relatively simple in their methodology. For example, enrollment can be forecast simply by applying a percentage to the projected population of school age. The disadvantage of this method is that it handles problems such as repetition and dropout implicitly rather than explicitly, which can be misleading. It does not lend itself to the analysis of wastage due to repetition and dropout and of policies aimed at reducing this wastage.

More complex models track the flow of students through the educational system in a way that more closely mimics the real course of a typical student's progress, and allows the planner to focus on issues such as repetition and dropout. Complexity also results from the attempt to model school systems with multiple education branches (such as one encompassing several types of vocational training), especially when students coming from different branches are allowed to rejoin at the next higher level. In general, the attempt to model reality in a more detailed and accurate way necessarily increases the complexity and difficulty of the model.

Finally, the type of method that will be used to implement the model on a computer must be selected. The model can be performed on an electronic spreadsheet, for example. This might be quickest and most appropriate for a relatively simple model, but soon becomes unmanageable as the complexity of the model grows. Other options include use of computer languages such as Pascal, C, or Fortran, or there are computer packages specially designed for system simulations.

How the model will be used and who its users will be, define the features of an appropriate model. Today, however, some features are considered essential if the model is destined for use in developing countries. They are becoming the universal criteria on which microcomputer models are being developed in and for the Third World.

Three Universal Criteria

First, the model must be capable of running on a microcomputer. The availability and cost of mainframe computing is still beyond the reach of educational planners in developing countries. Second, manipulation of the model must be directed by a menu, giving options to the user that briefly explain the choices. Third, the model needs to take into consideration the data limitations in most developing countries and work around the constraints of this limited data.

Types of Models

Besides these basic features, there are others that can be selected depending upon the needs of a particular situation. The main determinants in a situation are the use and the user. Below are several examples of cost models that progress from lesser to greater cost and complexity.

Case 1 – Here, the need is for a one-time, medium-term (five-year plan), simple enrollment projection, without a need to analyze the efficiency of the educational system. The users are accustomed to microcomputers and do not require a fully menu-driven* system with detailed explanations. A simple model is recommended in this case. The only sources of information are a current population projection and past population and enrollment data. A model of this type could be run in a matter of days, if not hours, with off-the-shelf software such as an electronic spreadsheet.

Case 2 – Another level of need might be for a system to make projections that can be used repeatedly and by people with little or no computer experience. The system would not need to generate information beyond simple enrollment projections. Here, the ideal solution is to use a programming language such as Pascal or the C language to develop a custom-made program that coaches the user every step of the way from putting in data to

(*Continued on page 6*)

(**ERIC** *from page 14*)

countries are suggested, and a glossary is included. Available from EDRS in microfiche for 78¢ or in paper copy for $3.70.

To order these documents, please see the first paragraph of this report.

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, 030 Huntington Hall, Syracuse University, Syracuse, New York 13244-2340, USA.

PTC
Call for Papers

The Pacific Telecommunications Council (PTC) has extended a call for papers to be presented at PTC's 1989 Conference, January 15-18, 1989, in Honolulu, Hawaii. The conference theme is "Pacific Telecommunications Connectivity: Users, Networks, and Information Services." Participants will explore the rapidly developing areas of networks, information and entertainment services, network-oriented equipment, and management of these activities from the perspectives of the user and the provider.

PTC will accept two-page outlines through June 30, 1988, covering the subject and scope of proposed papers, summaries of findings, and a brief biography of the major authors. Exhibits of equipment and services related to the conference theme are especially invited. For an exhibits brochure or other conference information contact PTC '89, 1110 University Avenue, Suite 308, Honolulu, Hawaii 96826 USA.

Tobacco Alert *in Spanish*

In collaboration with the Spanish Society of Cardiology (SEC) and the Spanish Society of Respiratory Pathology (SEPAR), the World Health Organization will soon publish *Alerta al Tabaco*, the Spanish- language edition of *Tobacco Alert*. The issue covers health topics related to smoking and smoking awareness campaigns worldwide. For further information, contact the WHO Programme on Smoking and Health/The Division of Public Information and Education for Health, World Health Organization, 1211 Geneva 27, Switzerland.

(**Crouch** *from page 5*)

performing projections. Developing this kind of model can take months of a programmer's time and can be very expensive.

Case 3 – The most complex need is for a system that can project both enrollment and internal efficiency measures, is transportable, relies on menus, is able to make medium and long-term plans, and can make projections using different demographic scenarios. It would take several programmers nearly a year to develop such a system, and it would be too expensive for most developing countries. This level of effort would be worthwhile only if the model were to be applied in many provinces and be used frequently; otherwise, development costs would greatly exceed benefits.

The BRIDGES Project

One of the missions of the BRIDGES Project is to develop tools for educational planning and policy analysis, including software for enrollment projections. This software must be quite powerful and at the same time relatively easy to use and transfer to developing countries. In other words, the project adheres to the three universal assumptions listed earlier.

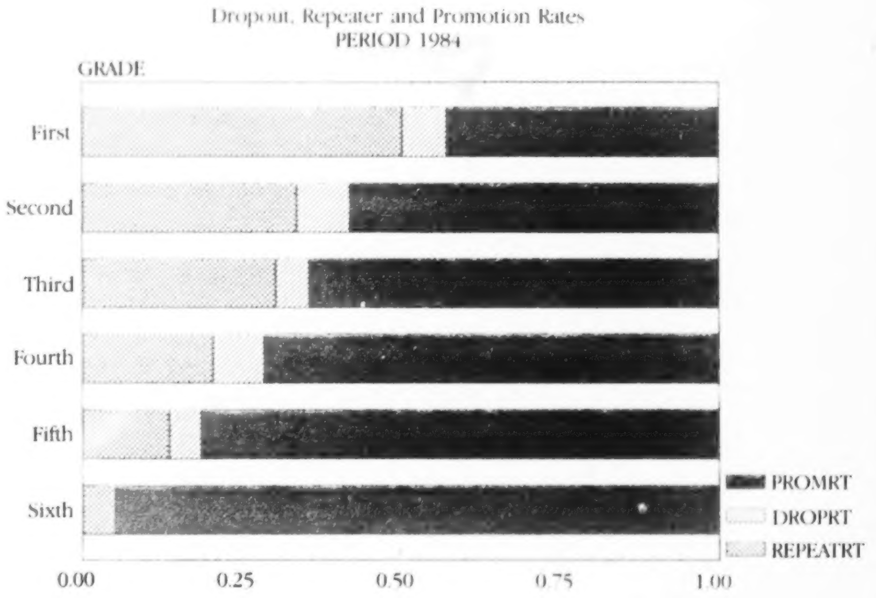
One such software package, the System for Tracking Educational Progress (STEP), is designed to answer a scenario similar to Case 3 outlined above. It is a modular system that can be used to project population and estimate historical repetition and dropout rates. It can be used to project these rates into the future as well as project student enrollment, measures of internal efficiency such as primary completion rate, and some measures of recurrent and capital costs (see graph 1).

Information required to use the package includes historical data on enrollment by grade and age, historical repetition data, either projected population or basic projected demographic parameters such as fertility and mortality, and cost parameters. Results can be shown either in the form of tables or color graphics. The user has a great deal of control over the final appearance of the results whether in tables or graphics. Any language based on the roman alphabet can be used to describe the tables and graphs and their variables. ■

For more information about obtaining this software contact: the BRIDGES Project, 452 Gutman Library, Harvard University, Cambridge, Massachusetts 02138, USA.

Luis Crouch is an economist at the Research Triangle Institute in North Carolina, USA. He has worked in the development of education sector planning models and methods in Ecuador, Thailand, Dominican Republic, Indonesia, and Turkey. He was co-developer of the STEP microcomputer model, under the auspices of the BRIDGES project.

Graph 1



Graph 1 shows the pattern of estimated rates at which primary students dropout, repeat, and are promoted. Notice that repetition gradually declines in importance.

Computer Simulation Games in Population and Education

by R. Scott Moreland

Simulation games have been in use for a number of years as heuristic* devices. Developed primarily for the military after World War II, in recent years they have been increasingly developed and applied in such diverse areas as private sector corporations, public utilities, political and international organizations, public health, and public planning agencies including education, health, and human resource divisions.

What Games Are

Games are primarily training devices that allow the "players" to make decisions about a specified range of policies or actions in the game's domain. For example, players may make budgetary decisions with respect to family planning programs or educational investments. After the decisions are made, some kind of artificial environment simulates the reaction of the real world, and players see the impact of their decisions. In the case of computer simulation games, the reaction of the environment is simulated with a computer model. In noncomputer-based games, a predefined "script" of the environment's reaction to a specified range of decisions exists, and the game leader communicates the results of their decisions to the players.

Computer-based simulation games used for training differ from the use of simulation models for the same purpose in that games are typically played in a role-playing structure by more than one person. Players are assigned decision-making roles and may be organized into teams which then compete to attain specified goals. Thus, an education planning game may involve teams consisting of decisionmakers responsible for budgetary matters, curricula, personnel, teacher training, and school construction. Each team may be given a budget and constraints within which to work (typically expressed as parameters). They may then attempt to maximize enrollment or to decrease enrollment and to improve learning. Usually a game leader is required to guide players and to act as a referee.

Advantages of Games as Training Devices

Gaming is an effective training device because it actively involves the player-participants in the learning process in a non-threatening way. There are several other advantages. First, players are given experience in understanding and negotiating strategies for achieving their goals in a dynamic and changing environment. Second, the use of the computer gives them instant and visual feedback on the effects of their decisions. Third, players gain practice in using a range of cognitive skills including analysis of complex situations, decision making, creativity, and cooperation. These skills are practiced in a situation similar to that found in the workplace. Fourth, games encourage exploration and inquiry in a context of authenticity that other training methods do not offer: players of computer simulation games can typically experiment with several options before submitting a final decision. Lastly, model-based games introduce players to the use of computer models as a work instrument and planning and policy tool. (See article in this issue by Luis Crouch on projection models.)

Two related games are briefly described below that have been developed for planners in the public sector.

Games in Population and Education

Two recent examples of games which were developed as training tools for decision makers and planners in public-sector planning agencies are the *United Nations Population and Development Game and the BRIDGES Education Planning Game*[1]. Both are microcomputer-based simulation games developed for use by Third World participants or by individuals interested in learning about the kinds of planning and policy decisions facing officials in the Third World. The BRIDGES game is an outgrowth and extension of the U.N. game and contains some of its elements.

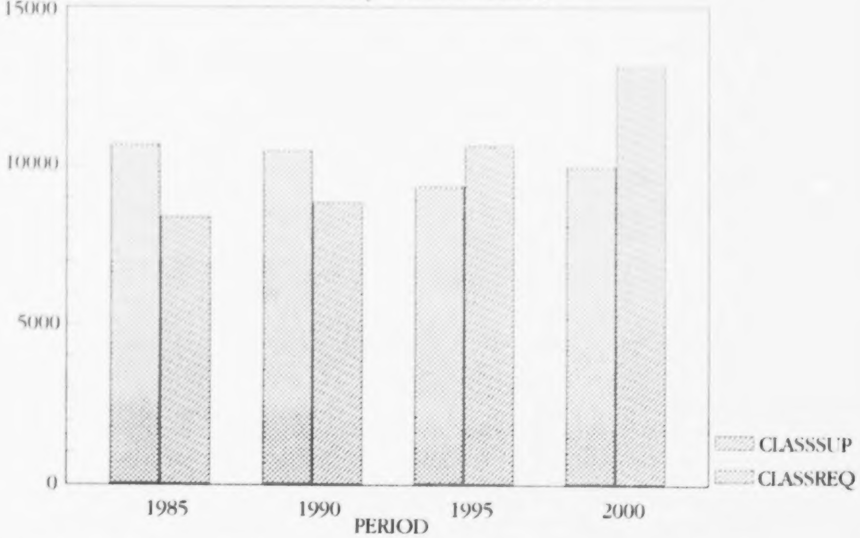
The U.N game focuses on teaching playersabout the interactions between population variables and the national economy and about the complementarity between, for example, education policies and population policies. The BRIDGES game, while using the same basic structure as the U.N. game, has a more fully-developed education sector. Its purpose is not only to teach players about the effects of educational attainment on, for example, the labor market, but also to teach them about the efficacy and relationships between educational policies and educational outcomes.

In both of these games, players' decisions consist of setting the numeric value of certain variables which are identified as policy or decision variables at the beginning of play. Policy decisions in the education area affect the supply and requirements for teachers and classrooms through spending. These decisions must be made within a budget specified by the game organizer. Other decisions in the education area concern student-teacher ratios, student-classroom ratios and other parameters which can be manipulated in the real world through policies (see graph 2).

(Continued on page 8)

Graph 2

Classrooms Required and Available



Graph 2 shows the number of required and supplied classrooms given the education assumptions made by a player. Notice that in the early years of the simulation, the player had a shortage of classrooms and in the latter years a surplus existed. By judicious juggling of the education budget over time, the player could have eliminated these imbalances.

Glossary of Computer Terms

Algorithmic - using a predetermined set of instructions for solving a specific problem in a finite number of steps. (Opposite of heuristic)

Computer Program - a series of commands, instructions, or statements put together in a way that tells a computer to do a specific thing or series of things.

Data - a general term meaning any and all information, facts, numbers, letters, symbols., etc., which can be acted on or produced by a computer.

Database - a collection of related data that can be retrieved by a computer (such as a mailing list or a list of accounts).

Games - computer programs in which individuals compete against each other or against a set of criteria, simulating real life.

Hard Copy - a printout of information produced by the computer.

Hardware - the physical equipment of a computer system.

Heuristic - designating a trial and error method for finding the solution to a problem by evaluating the progress made at steps along the way. (Opposite of algorithmic)

Input - the transfer of data into the computer.

Mainframe - the piece of equipment that contains the central processing unit and is used to refer to a large computer system.

Menu-driven - a system where the main menu of a program appears on the screen and from which an operator selects more detailed menus or functions to be performed.

Management Information System - the process by which a computer is used to provide information helpful to managers (such as inventories, payrolls, accounts payable, and receipts).

Microcomputer - a small, low-cost computer that contains its own microprocessor and is used mainly in small businesses or in the home.

Minicomputer - an intermediate-sized computer that generally operates about twice the speed of a microcomputer and supports many high-level programming languages.

Model - a preliminary description of how a system works based on all of its known properties.

Output - the information produced by a computer from a specific input or any of the devices involved in printing or storing the results of computer processing.

Parameter - a characteristic element with a fixed limit or boundary.

Program - a set of instructions that tells a computer to do something or to prepare a set of instructions.

Software - programs, languages, and/or routines that control the operations of a computer in solving a given problem.

Software Packages - a set of prewritten programs that can be purchased for use with a specified computer to perform various duties, such as accounting, payroll preparation, statistical analysis, and spelling.

Spreadsheet - a program that organizes numerical data into columns and rows (on a terminal screen) and allows calculations and forecasts according to certain formulas, such as adding two or more columns.

Variable - something having no fixed quantitative value.

Word Processing - the entry, manipulation, editing, and storage of text using a computer.

(**Moreland** *from page 7*)

In the population field, players' decisions concern family planning costs for various contraceptive methods for different parts of the country. Players can, for example, choose between low-cost but less effective methods such as condoms, and higher-cost, more effective methods such as pills and IUDs.

Economic policies that players can affect include government investment by region, the allocation of foreign exchange reserves to consumer imports, the exchange rate and other macroeconomic policies.

Players enter the values of the decision variables into the computer, which in turn simulates the reaction of the socio-economic system of a fictional developing country. The simulation consists of a relatively simple system of submodels of population, the education system, and the national economy. By entering the values into the computer and running the submodels, players can obtain feedback on the simulated effects of their decisions and can change them. Results are obtained by viewing tables and graphs. Players thus gain experience in the use of computer models in addition to the didactic content of the games.

In these two games, the object of play is to improve the performance of the various subsystems as measured by improvements in the value of various result indicators. Examples of such performance indicators in the education area are the gross enrollment rate by sex and level and the primary school completion rate by sex. In the population area, performance may be seen as measured by the contraceptive prevalence rate and the growth of the population. Examples of performance variables in the economy are the unemployment rate, income per capita, and a measure of income inequality.

Overall performance in these two games is measured by a single score that allows the order-ranking of players' outcomes based on the performance indicators. At the beginning of the game, the players and the game organizer can decide which indicators are more important by specifying a set of weights to apply to the indicators in the scoring. For example, if education performance at the primary level is more important than at the secondary level, then greater weights would be applied to the primary-level indicators than to the secondary-level indicators.

These games can be played by one or more people. When more than one player is involved, game play can be organized into either competitive or cooperative play. In competitive play, players compete on the basis of their scores. Depending on the number of players, competitive play can consist of several teams or of individual players (teams of one). Within each team, the players may assume roles such as chief economic planner, educational planner, etc. Again, depending on the number of participants, players can organize into groups each of which can be responsible for

A Communicator's Checklist

Educational Media in Retrospect. Education and Training Series Report No. EDT58, by Drew Tiene and Shigenari Futagami, (Washington, DC: World Bank, 1987), 105 pp

This is a report for development communicators who, in the dark of night or in the middle of a long shower, ask themselves, "What communications media strategies really work? Why do some efforts succeed while others fail?" *Educational Media in Retrospect* examines the critical issues in using media for development, especially radio and television, and tries to answer these basic questions.

Readers with long memories or with access to a good library can compare this volume with UNESCO's 1967 classic, *The New Media: Memo to Educational Planners*. The late Wilbur Schramm and others summarized three volumes of case studies on pioneering applications of educational technology around the world (some barely underway at the time) and looked ahead optimistically to what could be achieved with "the new media."

Two decades later, this World Bank overview is a successful sequel to Schramm, et al. Examples from several applications discussed in *The New Media* – especially the Ivory Coast educational television project – are used to explain why and how some projects accomplish their goals and others fall short of expectations. Other examples cited include the Nicaragua Radio Mathematics Project and its adaptation to Thailand, Kenya's Radio Correspondence Course for teacher training, the Philippines CET and RATES pilot projects using radio for teacher upgrading and classroom instruction, and China's Television University. Examples from the USA and Japan are used to illustrate how methodology can be observed, adapted, and applied elsewhere.

Drew Tiene is a young scholar at Kent State University. Shigenari Futagami, a senior figure in development communication, retired in 1987 after 20 years with the World Bank preceded by a similar period with Japan's broadcasting organization, NHK. Representatives of two generations and two cultures, the authors blend personal experience and insights gained from past and ongoing projects into a report designed to help media project planners and managers create and administer successful educational media projects in the future.

Their scope is wide ranging, reflecting an awareness of relationships and interactions between many factors affecting media projects that were not raised in the more idealistic UNESCO volume. Socio-political contexts, language differences, interagency cooperation, infrastructure requirements, equipment selection, teacher attitudes, production technicalities, feedback and evaluation, and cost-effectiveness are some of the issues treated in a two-stage format used throughout many of the chapters.

With this format, the authors first present the problems associated with project facts-of-life, followed by successful strategies to overcome such problems, based on field experiences. They conclude the report by providing planning guidelines and, at a time of rapidly expanding communication and computer technology, speculate about the future of educational technology applications in the Third World.

The cautious reader (like my librarian wife) familiar with international development agencies and their publications will want to know if this report is putting a brave face on World Bank projects, some of which have cost a great deal but accomplished little. I think readers will find this an honest depiction of events, rather like the "handing over" document of a retiring senior officer, who wants to leave behind some of the wisdom gained from overseeing major media projects from their planning to completion and final report writing.

To those thoroughly knowledgeable about the projects presented, there is an apparent avoidance of details, associated more with individuals than with entire projects, and, therefore, are out of place in a report such as this. In several non-World Bank projects, the authors had to take at face value the reports written by those who did the evaluations.

This is not a publication for those who adhere to the philosophy that "Technology is the answer." Project managers are cautioned throughout the report not to go forward with activities that are ill-conceived, lack proper analysis, and do not meet the authors' common sense criteria for ensuring that new projects will be successful.

This report especially warns against putting large sums of money into projects where governments are not prepared to meet preconditions for reasonable success. Instead, emphasis is placed on the use of pilot projects before deciding upon nationwide, large-scale educational media adoption. (See "Tuning-In" column for related article.)

In the end, radio – humble but robust when used creatively – stands the best chance of success when projects are properly conceived and managed. The sensible conclusion from Messrs. Tiene and Futagami is that no application of educational technology will succeed if the right conditions do not exist or are not sustained. ■

A complimentary copy of *Educational Media in Retrospect, Report No. EDT58,* is available by request from the Education and Employment Office of the Population and Human Resources Department, World Bank, Room S6029, 1818 H Street., N.W., Washington, D.C. 20433, USA. Please include the full title with the report number when requesting this publication.

Reviewed by David Giltrow, an independent consultant and Executive Secretary of Communications Consultants Cooperative International, based in Santa Fe, New Mexico, USA.

(**Moreland** *from page 8*)

decisions in particular areas.

Experience with these two recent games has been encouraging. The U.N. game has been used in several U.N.-sponsored regional training courses. The BRIDGES game was used during a month-long educational training course last summer at Harvard University, Boston, Massachusetts. ■

Footnotes

[1] The U.N. game was developed by RTI for the Department of Technical Cooperation for Development, United Nations. The BRIDGES game was also developed by RTI under the Basic Research and Implementation in Developing Education Systems, sponsored by the USAID. The U.N. game is available from Scott Moreland, Research Triangle Institute, P.O. Box 12194, Research Triangle Park, North Carolina 27709, USA. To request information about the BRIDGES Game, see the Crouch article on page 5.

Scott Moreland is an economist at the Research Triangle Institute. He has developed numerous models and several games during his career, including ones for Tunisia, Tanzania, Somalia, Ecuador, Mauritania, and Nigeria. Dr. Moreland is RTI project leader for the BRIDGES project.

Briefly Noted

by Pat Simons

An FAO Expert Consultation on Development Support Communication (DSC) was held 8-12 June 1988 to analyze DSC experiences, advise FAO and member governments on the appropriate role of communication in development projects, and recommend methods for realizing its potential. A series of case studies and a general paper discussing DSC strategies in rural development were prepared as background materials for the meeting. These papers and the report prepared as an outcome of the meeting should be useful to those planning, implementing, or evaluating development communication activities. The following is a synopsis of the case studies and the Consultation's report.

- *Perspectives on Communication for Rural Development*: This paper provides a good introduction to the development and use of DSC strategies. It begins with a description of the conceptual and historical development of development communication and its use within the U.N. system and FAO. Four kinds of DSC field activities are described: information, dissemination and motivation; participatory community development; training for rural producers and field workers; and institutional management communication. DSC delivery strategies are discussed under the headings "interpersonal communication," "rural broadcasting," "group media," "mass campaigns," and "distance education." An overall DSC process model, a management plan, and a staff training plan designed to take one through the steps necessary for applying DSC to an activity are presented. A short bibliography is included.

- *The Paradigm for Communication in Development: From Knowledge Transfer to Community Participation – Lessons from the Grameen Bank, Bangladesh*: This paper discusses the establishment, philosophy, and growth of the Grameen Bank, which has used participatory activities to enable poor people to borrow and repay loans. Decision-making, information sharing, development facilitation, monitoring and evaluation are all carried out through the use of interpersonal communication and group work. The bank's philosophy stresses the utilization of the assets and skills of the poorest of the poor and fosters self-reliant development for women as well as men. This paper provides an excellent overview of the Bank's operation and the reasons why it can claim a loan repayment rate of nearly 98 per cent in a country where a 10 to 40 per cent repayment rate is common.

- *Education through Entertainment: The British Radio Drama Series "The Archers – An Everyday Story of Country Folk."* Created in 1951 and still running in Great Britain, "The Archers – An Everyday Story of Country Folk" has been an immensely successful combination of entertainment, information, and education. Developed to stimulate agricultural development and increased farm production in Britain following World War II, the Archers quickly acquired a national audience in both rural and urban areas. This paper discusses the criteria used to create the characters, storylines, music, and subject matter for the drama and the factors that contributed to the program's success. Based on storytelling and aiming to foster imitation, this type of program may have considerable potential for use in rural development programs in the developing world.

- *Pioneering a New Approach to Communication in Rural Areas: The Peruvian Experience with Video for Training at Grassroots Level*: This paper describes the activities of CESPAC in Peru, which has been involved in the most extensive use of video for rural development in the Third World. From 1974 to 1986 the project produced more than 1000 video programs of about 20 minutes' duration which have been used with approximately 150,000 farmers for agricultural extension and rural development training. The paper describes the equipment used; staff selection, motivation, and training; and financing and costs. More than 150 Peruvians were trained in video production and another 200 were trained in the use of the programs. Additionally, Peruvians from CESPAC have provided technical assistance for similar video programs in other Third World countries.

- *A Rural Communication System for Development in Mexico's Tropical Lowlands*: This paper focuses on PRODERITH, another integrated rural development project which used video to promote information exchange and staff training. The author of the paper, Colin Fraser, states that this project "is one of the most imaginative and successful examples of Development Communication anywhere in the Third World." The PRODERITH was intended to develop Mexico's tropical lowlands and followed an earlier "top-down" project which because of its emphasis on infrastructure provoked resistance among the peasants. PRODERITH and its Rural Communication System strove to provide an environment in which village people were participants in the development process and utilized video to facilitate peoples' participation and grass-roots-level training. Video was used to inform peasants about the project and solicit their response to it, to communicate between village communities, for staff training, and education and to provide information at the institutional level. The paper describes the project's development, the production of materials, training of personnel, equipment used, costs, and evaluation methods.

- *Rural Radio in Mauritania*: Beginning with a discussion of the history of rural radio in Mauritania, this case study describes the Mauritania Rural Radio Project, which began operation in 1985. The program was based on the principle of promoting the participation of the rural population in program production. This was done by making recordings of rural people in their villages and encouraging them to discuss issues affecting their daily lives. Combining development themes such as environment, health, bush fires, and locusts with the traditional African oral culture, the radio programs used poems, chants, games, and quizzes to initiate an interactive discourse with the listeners. Rather than assuming a one-way broadcast, the programs adopted what were termed "gentle-teaching methods" designed to elicit the appropriate response from the audience, preserve the individual's self respect, and promote a participatory spirit.

- *Filmstrips in Extension and Training in Burkina Faso*: Since 1982 eleven filmstrips, with accompanying cassettes in the national languages, have been produced in Burkina Faso to assist the government's promotion of a wide-scale use of animal traction in agriculture. The author of this paper surveyed the directors of audiovisual units, group discussion leaders, and extension agents to gather information about the use of the filmstrips. The result is a discussion of why the filmstrips were liked or disliked and used or not used, as well as a list of comments from trainers about what they feel they need to be more effective extension workers.

- *The Report of FAO Expert Consultation on Development Support Communication* is the result of the Expert Consultation Meeting. The members agreed there has been insufficient recognition of how communication can increase efficiency, cost-effectiveness, and continuity of development activities and recommended ways that FAO and member governments could increase awareness of the potential of development communication.

They recommended that FAO's DSC Branch strengthen its information role and increase its development communication training activities in respect to field programming staff, missions, and member governments. This should include approaching national training institutions to build up their development communication curricula. The Branch should also place more priority on producing materials for training.

(*Continued on page 12*)

TUNING IN

Planning Ahead for Large-Scale Success

by Jamesine Friend

(This paper is adapted from a presentation given at the 35th Annual Conference of the International Communications Association, in Honolulu, Hawaii.)

In the developing world, projects that succeed on a pilot basis sometimes fail when implemented on a wider scale. This paper considers factors that might impede the success of a larger project. In discussing this situation, I am drawing from my knowledge and experience with educational radio programs designed for elementary school children in developing countries.

One way of better understanding the factors leading to success is to take a negative approach and ask: What are the barriers to success? Consider, for example, a project that provides daily radio lessons in an essential school subject. We will assume the radio lessons worked well when pilot tested on a small scale, so we know the students can learn given the right conditions. But what might happen when these same lessons are used more widely? For lessons to succeed, students must first be able to listen to them. Barriers to this might be that the teacher did not turn on the radio; or the lesson was not broadcast; or perhaps there was no radio in the classroom and even if there was it may not have been working, possibly because the batteries had run down.

In most instances, merely listening to the radio is not enough. The bulk of educational radio programs are accompanied by printed materials – for students and for teachers; some programs require special equipment; still others ask that the teachers perform certain functions requiring special training. Barriers to success could arise if the teacher fails to distribute the needed worksheets or they are not delivered to the classroom; the equipment may be missing or broken; the teacher may not have a manual to follow along with the lesson; or the teacher was not adequately trained to use the equipment.

Classifying Barriers to Success

One way of classifying barriers is on a tangibility scale ranging from items such as radios, batteries, and teaching manuals to such intangible factors as teachers not understanding the goals of the program or having poor attitudes toward the program. Another helpful classification approach is to look at the locus of existing barriers influencing a program. The relevant localities for the type of educational program we are looking at here are found at the national, regional, and classroom levels.

National- or Regional-Level Barriers

At the national level, the first challenge is whether or not the project should be implemented on a wide scale. There are many political and even psychological factors that enter into this decision, depending upon the country involved. These may relate to such intangibles as whose vested interests are at stake; how committed a country is to educational improvements; whether there is a favorable attitude toward distance teaching; whether radio is perceived as substandard to television; and how well the pilot project worked.

There are funding questions as well. Do the decisionmakers think the project is worth the investment required? Does the country have the money to invest at the time? Even if it can be shown that these lessons are the most cost-effective solution in the long run, the start-up costs may not be affordable, particularly if new transmitting facilities are required.

If the country decides to proceed on a large scale, project implementors will be confronted with a number of logistical and administrative barriers at the national and/or regional levels. Placement of project management is a crucial decision, the choice usually being between the Ministry of Education or the Ministry of Communications, but this varies from country to country. Regardless of where management is placed, logistical problems will develop related to broadcast preparation, printed materials' delivery, equipment distribution, and teacher training.

Getting on the Air

Of primary importance is the availability of a sufficiently powered transmitter in order to reach school sites with educational broadcasting. Fortunately, high-powered transmitters are already in place in many countries. If an existing government-owned transmitter is already fully dedicated to broadcasting educational programs, access is usually not a problem. Often, there are not enough programs to fill the allotted time and such programming is welcome. Elsewhere, however, scheduling conflicts may arise because of competing demands. In that case, the only recourse may be to purchase time on a commercial transmitter. At the very worst, a new transmitter would have to be built, and this would be warranted only if there were several hours of daily programming.

Providing Printed Material

Being dependent upon regular delivery of printed materials can cause continual problems. In general, it is easier to mount a one-time distribution effort than to count on maintaining regular material deliveries to remote schools. It has been my experience that depending on disposable worksheets that require yearly restocking is not as desirable as providing the initially more expensive textbooks that can be used again and again. (There may, however, be pedagogical reasons for preferring worksheets to textbooks.)

The distribution and maintenance of radios and other equipment presents problems similar to those of print materials. Since most schools in developing countries do not have electricity, batteries must be used. The potential problems arising from this dependence include supply and delivery problems if batteries are distributed from a central warehouse, financial problems if batteries are to be purchased locally, or lack of an adequate local supply when replacements are needed.

Training Teachers

Teacher training is another challenge. In some countries, special in-service training is provided in the capital city or in large regional centers to which teachers must travel during school vacations, involving considerable time and expense for the teacher. In other countries, a trickle-down approach is applied wherein regional inspectors are trained and sent out to train others who in turn train the teachers. Unless this form of training is well defined and well planned, the message may not make it through these multiple layers. Even if a well-organized system of teacher training is in place, not all teachers benefit from it because they may not learn about training opportunities in time, may lack the funds to travel, or may not be interested in further training.

Classroom-Level Barriers

Assuming that the central and regional authorities did an exemplary job of delivering equipment, printed materials, and other necessaries to the classroom, and that the teachers were properly trained, there remains

(Continued on page 12)

(**Noted** *from page 10*)

Recommendations to governments stressed the fact that development is based on voluntary change by people, which can be greatly facilitated by communication. Governments should consider establishing functional DSC units for rural development and allot suitable budgets for development communication.

A number of points were highlighted during the Expert Consultation. Some of these focused on the case studies and what could be learned from them in terms of media and usage. Others used the case studies and other experiences to determine the extent to which communicators have taken into account local culture and values as well as traditional communication channels and structures. Also discussed was how communicators could insist on a proper communication methodology that includes research and planning, message design, pretesting, formative evaluation, and proper staff training; and how they could utilize the well-developed science based on psychology and group and individual behavior that has been successfully used by marketing people to affect attitudinal and behavioral changes.

All of the above papers are available free from: FAO, Development Support Communication Branch, Information Division, Via delle Terme di Caracalla, 00100 Rome, Italy.

- *Water Supply and Sanitation for Developing Countries: An International Sourcelist of Audiovisual Materials.* This publication is an inventory of audiovisual materials on water supply and sanitation that have been identified by a variety of worldwide organizations. The materials presented range from simple posters for use in health education in rural communities, such as the Gambia Health Education Unit poster titled "Wash Your Hands with Soap" to multi-media modules designed for training sanitation engineers, such as the 20 modules listed from the Economic Development Institute of the World Bank, which cover a number of topics including "Sector planning," "Economic cost-benefit analysis," and "Ground water development."

The guide is well organized with separate sections for the following media: 16mm films and videos, slides, filmstrips, posters, flashcards, and flipcharts as well as a miscellaneous section that includes materials for exhibitions stands, magnetic boards, and flannelgraphs.

Each entry includes the title of the audiovisual, the language(s) in which it is available, the intended audience, the distributor, and price information. Indices by title, subject, and distributor are also included. Available free from Community Water Supply and Sanitation, Division of Environmental Health, World Health Organization, 1211 Geneva 27, Switzerland.

- *Techniques d'Impression à Cout Moderé* is a very useful, well-written, and clearly illustrated guide to low-cost printing methods appropriate for developing countries. It is intended for those who do not have professional training in print media production. Although written to address the conditions that exist for printing materials in francophone Africa, much of the information in this publication could be adopted for use in other developing regions.

The guide is divided into three sections: 1) the decision to print;, 2) appropriate techniques; and 3) using professional printing facilities. The first section discusses a number of points that must be addressed when printing materials. These include questions regarding the message and the audience, the type of document to be printed, the number to be printed, and the frequency and means of distribution as well as concerns related to available skills, facilities, equipment, and space for printing.

The second section explains various printing methods and procedures such as stencils, alcohol duplicators, silk-screening and simple offset printing. The third section discusses professional printing facilities, how to evaluate them, and what steps must be taken to have a document professionally printed. The book concludes with a glossary of terms and a bibliography of related books, published in both French and English. Published in French, this publication is available for 70FF (plus 15FF postage to France, 20FF outside of France, and 35FF for air mail) from GRET, 213, rue La Fayette, 75010 Paris, France. ■

Pat Simons is the Information Specialist for the Clearinghouse.

(**Friend** *from page 11*)

another type of barrier in the classroom in the form of teacher resistance.

In my experience, most classroom teachers are dedicated workers; they go into education because they like children and want to provide them with better educational opportunities. They usually are willing to try anything that appears to improve the teaching environment provided that the potential for learning will outdistance the perceived disadvantages of an innovation. Given this commitment to their students, teachers view with some skepticism innovations that are proposed by "outsiders" who may not understand the conditions under which most of them work. They ask themselves "What are the benefits? What are the costs?" Benefits, from a teacher's point of view, are increased educational opportunities for all or some of the students and less work for the teacher (preparation time, etc.). The advantage of a reduced work load is that time or energy saved in one subject area can be used to increase the quality of instruction in another subject.

Costs translate into more than just cash outlay for a teacher – although cost is always a factor since most teachers are not paid enough to buy school supplies out of their salaries. But costs in terms of time and effort in preparation and in class time must be weighed as well. For instance, if special equipment or displays for the classroom are required, it very likely is the responsibility of the teacher to gather these materials. Other intangible costs can be defined in terms of the mental effort required to change classroom management habits, to master new pedagogical techniques, or to learn new course content. Or, there are those costs to students both in the form of actual cash outlay for special materials and books, or in loss of time because of increased problems in classroom management. For example, in science classes, teachers are sometimes asked to encourage students to work independently in an "open classroom" environment; some teachers see this as leading to disruption of the classroom and, consequently, a reduction in learning.

Thus, it would seem to me that what is often labeled "teacher resistance" to innovation is often a rational balancing of conflicting desires. And a project that does not come out well in the balance is one that will fail at the barrier of teacher resistance. Teacher resistance is not the only barrier at the classroom level, although it may be the most important. Other barriers to consider are lack of classroom supplies (paper, pencils, chalk), insufficient light, insufficient space, poor equipment (desks, blackboards), inaccessibility of schools to students during rainy season, etc.

Some Final Thoughts

The above suggestions for classifying barriers to success provides a framework for organizing strategies to overcome potential barriers before they are encountered. Problems anticipated in advance often seem to solve themselves, and more difficult problems can often be circumvented by making corrective decisions while the educational products are being designed. Good product design is thus dependent upon anticipating barriers; to foresee future problems requires information – information about both tangible and intangible factors at all levels – national, regional, school, and classroom. ■

Jamesine Friend is president of Friend Dialogues, Inc., a private firm that does research and development work in education. She was the overseas Director of the Radio Mathematics Project in Nicaragua from 1974 to 1978 and has since been involved in radio projects in the Dominican Republic, Papua New Guinea, and Honduras as well as consulting and providing training for radio projects in Brazil, Kenya, and the Philippines.

Sri Lanka Trains Health Workers in Visual Communication

by S.B.R. Nikahetiya

It all began when Worldview International Foundation (WIF), a nongovernment international development organization whose activities are focused on development communication, provided funds to assist UNICEF in its Child Survival and Development program in Sri Lanka.

At the first meeting of representatives of WIF, UNICEF, and the Sri Lankan Health Education Bureau, the most significant question posed was how to use available funds best. Several important points were brought out. While the field health workers, who are the vital link between the medical personnel and the public, were deemed technically competent in the areas of health, nutrition, and family planning, they were poor at communicating their messages. What the health workers needed was to acquire skills in developing, producing, and using simple visual aids based on fundamental principles of communication.

How to Train?

Another matter was the decision whether to train a limited number of trainers in each district, so they could train all field health workers, or to directly train field health workers in selected districts. It was decided that direct training would be used because even though the "multiplier effect" of pass-on training is frequently recommended, it has not seemed to work as well as the direct training approach. The multiplier effect of pass-on training may not be realized, since trainees often return from these sessions only to be reassigned.

Goals emerging from the meetings between UNICEF and WRI included:

- training field health workers in support of UNICEF's "Child Survival and Development" effort;
- concentrating on the identified needs of field health workers;
- training as many field health workers as possible by the direct approach;
- using an action-oriented training and a workshop style encompassing more group activity;
- focusing on developing practical skills, in which small groups of trainees go through the stages of planning, production of simple visual communication materials, and field pretesting.

In addition:

- the workshops would emphasize training that was relevant to local needs, and subjects chosen for the production of visual aids would be based on actual health and nutrition problems prevalent in the regions, in which trainees worked;
- a visual aids kit would be prepared for each trainee at the end of the training course as an incentive to use their newly-acquired skills in their day-to-day activities in the field;
- the workshops would be conducted in only one district at a time;
- as field health workers could not be released from their normal duties for long periods of time, each training course for 30 trainees would run only for three days.

With assistance from the Health Education Bureau staff, the course content was prepared. Included in the curriculum were: the definition and basic principles of communication; barriers to communication; communication skills; communication methodologies; the role of visual aids in communication; types of visual aids and their preparation; practical group sessions on producing visuals; field pretesting of the visuals produced by the group; and presentations by group leaders using their own visuals.

Thus, the three-day course was designed to introduce trainees to basic concepts of communication to establish a theoretical base, while at the same time helping them to develop their skill in the production and use of simple visual aids such as flip charts, flash cards, flannel graphs, chalk boards, leaflets, and posters.

> *. . . their visual aids kits. . . (helped them) become more effective. . .*

The Visual Aids Kit

The final activity before launching the project was the preparation of the visual aids kits to be presented to each trainee. This practical kit contained, among other items, a portable chalk board. An extension officer who had learned how to prepare the boards while abroad on training undertook the manufacture of them for the Health Education Bureau. They are constructed out of cloth, composition board, paste, and green paint. They can be rolled up and carried by a field worker, hung in a convenient place, and be written on like an ordinary chalk board.

Other items in the kit include a piece of flannel to make a flannel graph, drawing paper, a set of colored felt-tip pens, sandpaper, glue, colored chalk, pencils, and erasers. The first training program was conducted as a three-day residential course in July 1986.

Today, after a year of activity, all participants can look back with pride and satisfaction. In spite of many problems, 12 training programs have been completed for groups such as family health workers, public health inspectors, school dental nurses, and field nursing sisters. Training will continue as long as funds permit.

Assessing Results

Finally, the actual success of a training course can be judged only by the degree to which the newly acquired skills and knowledge are put into practice in the field. This is the purpose of the second phase of the project – the "Monitoring and Evaluation Phase." This phase is currently in progress. Each trained health worker receives a questionnaire each month to follow-up on how they are using the visual aids kit and what they are producing with it.

Data received from these questionnaires are being analyzed and put in graph form to detect trends in the use of the materials in the visual aids kit. The results obtained so far are encouraging. All of the health workers are now using at least one of the visual aids, whereas very few were using them before their training. The most frequently used visual aid is the portable chalk board, which is probably a matter of it being ready to use straightaway without the need for special preparation.

The second most frequently used visual aid is the flannel graph. Since trainees received instructions on how to use flannel graphs in training, it is easy to understand why they are used more often. An interesting finding from the responses is a gradual increase in the use of flash cards. A number of factors explain this increase:

- flash cards are small enough to be carried easily by health workers during their field visits and can be used with small family groups;
- subject areas of general health, nutrition, and family planning lend themselves well to the flash card format;
- because it takes time to properly prepare flash card material, the increase will be gradual.

The most important and gratifying feedback received from the health workers is that by using their visual aids kit, they believe their health extension activities have become more effective and are easier to perform. ■

Mr. S.B.R. Nikahetiya is currently Director of WIF's Media Center in Colombo, Sri Lanka. He has 30 years of experience in the field of development communication and has a master's degree in agrarian development and communication.

On File at ERIC

by Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files include papers and reports on information strategies for Latin American countries; an MIS for educational administration in the Caribbean; using an MIS for enrollment management in a college in the United States; a discussion of the factors involved in classroom computer use in developing nations; and a report on the development of a bilingual interface in Arabic and English for a full-text database search facility in Egypt; and papers from a meeting on information systems in urban and regional planning in Asia and the Pacific. All five of these documents are available in microfiche and paper copy from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia, USA. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. U.S. requests should calculate postage based on the following: 3 microfiche = 1 ounce, 75 microfiche = 1 pound, 75 pages of paper = 1 pound. Overseas requesters should contact EDRS for postage costs. (VISA and MASTERCARD charges are accepted by EDRS.) **The ERIC Clearinghouse on Information Resources located in Syracuse, New York, cannot supply copies of these documents.**

● Crowther, Warren. *Tailoring Information Strategies for Developing Countries: Some Latin American Experiences.* 1984, 12pp. (ED 274 375)

This article discusses the conditions in developing countries that must be taken into account when developing information strategies for their public and educational institutions or projects. Its central argument is that newer information science concepts, although demanding technological and conceptual sophistication, can be useful in the transition from an information-poor society to one that is rich in information; however, they must compete with a continuing flood of modern and less demanding concepts that result in acquiring the trappings of an information-rich society, without the power or decision-making effectiveness that should accompany it. To demonstrate this point, Crowther lists 24 design principles for information strategies obtained from recent experiences in the public sector and in universities in 20 Latin American countries. He proposed these principles as general specifications for technical cooperation with Third World countries. Additional information is provided in 11 endnotes. Available from EDRS in microfiche for 82¢ or in paper copy for $1.94.

● Heuvel, John W. *Management Information Systems as a Tool for Educational Administrators in the Commonwealth Caribbean.* 1985, 19pp. (ED 276 144)

This paper introduces the essential concepts underlying management information systems (MIS), from the managerial perspective then outlines, a form of MIS design and implementation that may be attainable in a Caribbean educational setting. Noting the growing importance of information and the increasing need to amass thorough information for decision making, the paper proposes using MIS to improve accountability and enhance administrators' ability to defend budgets and to demand autonomy. The capabilities of simple data banks and more advanced systems are discussed, referring to the needs of educational administrators along with the vital role of top management in supporting the implementation and acceptance of MIS. The paper stresses the need for adequate MIS management and lists its basic functions within individual institutions, concluding that it is likely that MIS will increase in both value and complexity. Appendixes show the kinds of information MIS can make available and detail the vital steps in MIS implementation. Available from EDRS in microfiche for 82¢ or in paper copy for $1.94.

● Mehran, Nojan and Michael L. Clemons. *Data Base Development for Effective Enrollment Management.* 1987, 33pp. (ED 286 400)

The design and development of an enrollment management database at the State University of New York at Oswego are described. A basic premise is that the concept of enrollment management has begun to replace the traditional admissions model. Enrollment management helps the college identify existing and potential markets; determine the resource allocation and programming strategies needed to effectively serve its clientele; and forecast enrollment and rates of retention/attrition for various student groups as well as determining the causes of attrition. The primary purposes of the enrollment management database are to integrate longitudinal external and internal environmental trend data and to track students from initial contact, through application, enrollment, retention, graduation, and alumni follow-up. The database includes reasons why students attend the college; characteristics of matriculated students, students who complete programs, and dropouts; and personal and/or institutional variables that affect enrollment, retention, attrition, and the benefits accrued by students who attend the college. Data components of the database are outlined. Available from EDRS in microfiche for 82¢ or in paper copy for $3.88.

● Fayen, Emily Gallup and others. *The Arabization of a Full-Text Database Interface.* 1986, 5pp. (ED 281 519)

The 1981 design specifications for the Egyptian National Scientific and Technical Information Network (ENSTINET) stipulated that major end-user facilities of the system should be bilingual in English and Arabic. Many characteristics of the Arabic alphabet and language affect computer applications, and there exists no universally accepted character encoding scheme equivalent to the ASCII standard for Latin alphabets. In order to overcome the language barrier in the system, a native language interface to existing software was developed. The Arabic language software functions include an Arabic editor running under the UNIX operating system, an Arabic database search facility, and electronic mail. These functions were implemented for peripheral devices using the CODAR/UFD Arabic character encoding scheme. The Arabic database search facility has been developed by arabizing BRS/Mate, a menu-oriented front end to the native mode of Mini-Micro BRS/Search, a full text state-of-the-art information management software system. Five references are provided. Available from EDRS in microfiche for 78¢ or in paper copy for $1.85.

● Friend, Jamesine. *Classroom Uses of the Computer: A Retrospective View with Implications for Developing Countries. Discussion Paper.* 1985, 36pp. (ED 282 519)

Although computers have been used in education for 20 years in the United States and Europe, they have not been widely used in the less developed countries of the world because the initial investment and operational costs of computers have been too high. Should advances in hardware technology continue to reduce such costs, some educational applications of computers will soon be affordable to less developed countries. In this paper prepared for the World Bank, the current status of educational applications for computers is reviewed with a view toward predicting the direction of such applications in developing nations. An overview of the development and use of computers from the 1950s to the present is provided, and hardware and financial factors influencing the development of education software are discussed, as well as classification and design principles relating to these programs. Potential problems areas in using computers in developing nations are described which include 1) the environment; 2) power requirements; 3) lack of human resources; 4) curriculum and pedagogy; 5) high costs of both the initial investment in computers and their operation; and 6) the development quality of courseware. Specific areas in which computer-assisted instruction may prove to be cost-effective for developing

(Continued on page 6)

(**Shubert** *from page 16*)

This included criticizing and making merry at the expense of the king. The key to the game, however, was that the next day no one could utter a word about what had happened the day before.

Over time, this game evolved into an annual event, usually taking place just after the harvest. It also began to assume a distinctive pattern that included dance and music followed by an improvisational performance.

Usually, there is a dance performed around a fire preceding the play. Drummers and percussionists are in an inner circle closest to the fire, moving in one direction; next come the women, clapping and singing, moving in the opposite direction. A circle of men moving in time with the percussionists completes the circle, outside of which are the spectators. In fact, it is this back and forth spiralling motion that earned *Koteba* its name, which literally translates from Bambara as the big *(Kote)* snail *(ba)*.

The second part of the *Koteba* is the theatrical portion, which is normally performed by five principal characters. There is no script – everything is improvised. Usually the key percussionist assigns parts to various people, but everyone knows the rules and understands the purpose of the play. The object is to exaggerate social issues and problems to the level of the ridiculous, helping to clear the air and, more often than not, instigate food for thought. People can then get on with their lives.

For Malians, the *Koteba* format was a natural vehicle for expressing messages about family planning to the general public. The slices of life depicted in the television program are quite comical, yet real and convincing. The example of the two wives who go to the family planning clinic for counseling illustrates how reality can be slightly exaggerated and a potentially delicate topic broached. The two wives smile and nod their heads in unison as the clinic nurse patiently introduces the range of contraceptive methods available, holding them up one by one and describing how to use them.

Family Planning as a Malian Tradition

Although the *Koteba* was acted out and filmed in a Bamako neighborhood, it never was performed as a live community play because by coupling the traditional theater format with television, exposure to family planning messages was increased at least tenfold over live audiences. As noted earlier, family planning services in Mali are probably best developed in the urban zones. These are the same areas – at least in southern Mali – where television viewing is the greatest. Although it is uncertain how many Malians own television sets, the number of people who have access to a set is estimated to be relatively high. For example, in Bamako it is not unusual for several families to get together during the evening and watch a favorite program or the news.

Approximately a year after the *Koteba* was first shown, the *AMPPF* conducted an abbreviated survey over a two-week period with 500 individuals who visited the *AMPPF* clinic for services or information. This survey assessed how a select group of people perceived family planning and indicated whether they had been exposed to the various project interventions, including the *Koteba* teleplay.

Survey findings showed that roughly a quarter of the people attending the clinic during this period remembered the *Koteba*.

> *. . . coupling traditional theater with television. . . greatly increased the audience.*

Although age did not seem to be an important factor, more working women than housewives watched the program.

JHU/PCS is currently planning a second phase of this project with the AMPPF that will build on its experience of blending traditional and modern communication channels. During phase two of the project, many of the programs developed for television will also be available in video for use by various government and nongovernment organizations as an entertaining, family planning awareness-building tool for community outreach activities, workshops, seminars, and family life education programs. In this way, many of the programs produced for television can be used again and again in a variety of contexts, increasing overall exposure of relevant messages and themes.

Malian heritage boasts a rich array of traditional communication channels. Songs, stories, parables, music, dance, theater, and mime – sometimes made even more lively by the use of masks or the wizened voice of a *griot* (a story teller) – are all age-old forms of Malian expression. They are as popular now as they were centuries ago. Virtually every ethnic group in Mali has a particular set of stories, dance, music, or mask forms that it can claim as its own, giving *AMPPF* reason to be optimistic that by disseminating family planning information in a culturally acceptable fashion via *Kotebas* and other traditional media, people will be more receptive to the message content. This approach, coupled with the use of mass media, will give maximum exposure to messages at a relatively low cost.

AMPPF's goal will have been reached if the theme, "Family Planning as a Malian Tradition," is on its way to becoming an accepted household phrase by the end of the project. ■

For more information about this project, contact Joan Schubert, Population Communication Services, 624 N. Broadway, Baltimore, Maryland 21205, USA.

Joan Schubert is Program Officer at The Johns Hopkins University/Population Communication Services (JHU/PCS), who works primarily in francophone West Africa. She is currently involved in several JHU/PCS projects in the region that integrate mass media, traditional, and interpersonal communication channels to disseminate messages about family planning.

Communication Seminar on Agriculture and Rural Management

A seminar is planned June 21-24, 1988, at the Agricultural and Rural Management Training Institute (ARMTI) located in Ilorin, Kwara State, Nigeria. Cosponsored by the Canadian International Development Agency, the purpose of the seminar is to help promote better networking and information exchange in developing countries, particularly among African agricultural policymakers, practitioners, and agricultural organizations. Objectives of the seminar are to:

- review the current methods of managing and disseminating agricultural information;
- design improved strategies for effective agricultural information;
- develop a directory of producers and users of agricultural information;
- identify training needs for information managers and communication specialists and recommend a standard training mode;
- initiate the concept of networking and the exchange of information among institutions concerned with management of rural development and agriculture.

DCR will carry a report on the seminar when the proceedings are published.

For more information about the activities of ARMTI, contact: The Director, ARMTI, Km. 18, Ilorin-Lokoja Highway, P.M.B. 1343, Ilorin, Kwara State, Nigeria.

(**Shubert** *from page 1*)

Since October 1985, The Johns Hopkins University/Population Communication Services (JHU/PCS) has enjoyed an active working relationship with the *Association Malienne pour la Protection et la Promotion de la Famille (AMPPF)*. The *AMPPF*, a member of the International Planned Parenthood Federation (IPPF), pioneered family planning in Mali and works in collaboration with the Division of Family Health to provide training, contraceptive materials, and communication support. Of prime importance is the Association's role in providing information to the general public on family planning matters and motivating the public to accept and use contraceptives.

JHU/PCS has helped *AMPPF* enhance its skills in program strategy development and has worked with its members to create and produce innovative, appropriate information, education, and communication (IEC) materials using the established PCS principles of population/family planning communication. During the course of a 24-month project between the two institutions, a variety of materials – posters, pamphlets, radio programs, a national logo, etc. – were designed, pretested, and produced. Several rounds of focus group discussions were carried out over the life of the project with a variety of groups, including potential clients, current clients, and service providers to ensure the suitability of materials and messages being developed and disseminated.

Several of the IEC efforts carried out under the project successfully merged traditional and modern communication channels. For example, radio programs featured presentations of traditional stories, sayings, and music built around family planning themes.

The *Koteba* Project

Of all the materials developed, however, the one that seemed to generate the most excitement and interest was a televised *Koteba*, or traditional theater piece, that brought to light the many social and economic benefits of family planning for the average Malian family. The *Koteba* teleplay was the result of the joint efforts of several organizations, including the *AMPPF*, the *Radiodiffusion Télélevision du Mali (RTM)*, and the *Institut National des Arts (INA)*. Much of the message content for the *Koteba* was inspired by a series of focus group discussions carried out in a number of neighborhoods in Bamako, the capital, at the beginning of the project. Together with consultants and actors from the *INA*, the *AMPPF* worked out a story outline, keeping in mind key family planning messages developed and pretested during the focus group discussions. Characters were then "fleshed out" until it was felt that rehearsals could begin. When everything was ready, the RTM sent its mobile unit to the outskirts of Bamako and shot the 80-minute play in three days. Because RTM donated the use of its equipment and offered free broadcast time, the total cost for the production, which was aired three times on national television due to popular demand, was approximately US$3,000.

The plot is relatively simple. Using considerable humor, the story parallels the lives of two government employees who work in the same department. One has two wives, too many children for the family's means, and innumerable problems as a result – incessant fighting between the wives, disrespectful and delinquent children, and constant turmoil. What has gone wrong? The other, with one wife and fewer children, enjoys a more pleasant life; his children were planned. Home life, in general, is comfortable. One day, he invites his friend home for dinner and the conversation turns to family planning. The friend is quite taken with the idea and later convinces his wives of the advantages of family planning. One of the final scenes is of the two wives together at the family planning clinic where they receive a detailed explanation of family planning methods. (See photo)

The dialogues are in Bambara, a language understood by roughly 70 percent of the Malian population, as well as by a number of ethnic groups elsewhere in West Africa. Informal group discussions carried out at Ministry of Health (MOH) clinics also revealed that service providers unanimously approved of the teleplay as a motivational tool to steer potential clients to clinics to seek family planning information and services. JHU/PCS has agreed to fund two additional *Koteba* plays as a follow-up to the initial endeavor. The new plays will be broadcast on television and will be available on video as well as transferred to 16mm film so that they can be used as entertaining discussion starters for conferences, workshops, community meetings, and other family planning education forums. Based on popular feedback from the community and MOH service providers, these teleplays will feature family planning from the perspective of maternal and child health, with more information on where to go for contraceptive services.

Strategically speaking, the decision to use the *Koteba* theater format to disseminate family planning messages to the general Malian public was an excellent one. In most regions of the world, particularly when it involves mass media, family planning topics are often shrouded in a variety of other messages so as not to offend or shock the audience. The beauty of *Koteba* is that it is traditionally used as a vehicle to express the everyday concerns of Malian people.

The Origins of *Koteba*

There are several theories as to where the *Koteba* theatrical format originated. One involves a greatly feared Bambara king who ruled at the turn of the century. He was very conscious of his power and was known to gloat about the authority he could wield over his subjects. At the same time, he was aware there was a great deal of dissatisfaction and unrest brewing among his people. Not wanting to cultivate the seeds of potential revolt, he created a game for his subjects. He ruled that for one evening – and one evening only – the populace would have total liberty to amuse themselves in any way they wished.

(*Continued on page 15*)

Padé and his two wives at the family planning clinic.

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Social Marketing + Radio = Educational Success

by Elizabeth Booth and Dr. Jose C.C. Calix

They said it couldn't be done! Some said it shouldn't be done. But the first experiment in marketing interactive radio instruction to school teachers has begun, in Honduras, with remarkable success. More than 80 percent of the first grade teachers in the pilot area purchased the first commercial interactive radio product and are using it in their classrooms. [Interactive instruction is characterized by a mimicking of conversation between students and teachers.]

Background

In early 1987 the Agency for International Development's (A.I.D.) mission in Honduras began a major new Efficiency in a Primary Education Project. One of the seven components of the project was interactive radio instruction to improve the quality of mathematics and Spanish instruction. Responding to a request from the Ministry of Education (MOE), A.I.D. provided a grant to *AVANCE*, a local nonprofit organization dedicated to the use of mass communications for social development, to implement the interactive radio activity. The Ministry made the request with the understanding that they would coordinate with and support the interactive radio component. The A.I.D. mission provided technical assistance to *AVANCE* for the development and marketing of this work through the Radio Learning Project.

AVANCE's mandate requires financial self-sufficiency within three years. This meant that, for the first time, the supplementary print and other interactive radio support materials would have to be sold commercially rather than be distributed free through the public system. *AVANCE* staff faced the unique challenge of applying the lessons learned from the social marketing of products and concepts in agriculture, health, and family planning to the field of education. With the umbrella provided by the A.I.D. funding, they had the opportunity to experiment and revise the process over a three-year period.

Why Sell to Teachers?

In initial planning sessions, *AVANCE* thought they would market interactive radio instruction to the local Parent/Teacher Associations. However, research revealed that although many PTA's maintained school buildings, they generally did not purchase educational support materials. The research also indicated there was an underlying tension between parents and teachers. Teachers maintained that the community did not support them, while parents felt that education was basically the teacher's job.

(**Booth** *continued on page 2*)

Dear Readers,

With this issue, the Academy for Educational Development's management of the Clearinghouse on Development Communication comes to an end.

Funded by the Office of Education of the Agency for International Development's Bureau for Science and Technology, the Clearinghouse is a contractual project that is periodically awarded competitively. For the past 17 years, the Clearinghouse contract has been held by the Academy. This year, A.I.D. has awarded a new five-year contract to the Institute for International Research, Inc., whose staff will continue to provide the publications and information services associated with the Clearinghouse.

We have been privileged to work with you, our readers, over the years, to bring development communication to a point where it is universally accepted as an essential component of development activities. There is still, however, a gap to be closed between acceptance and application to which we must all continue to apply our efforts. We, at the Academy, will continue to work in development communication, and encourage you in your own good work!

On the Road with the Atelier Theatre Burkinabe

by Joy Morrison

In Ouagadougou late one night recently a 16-member theater company quickly loaded two Land Rovers with equipment, props, and costumes for a weekend tour of two northern towns in Burkina Faso. The *Atelier Theatre Burkinabe (ATB)*, 10 years old this year, was again taking its Theater Forum on the road to promote social development in rural communities throughout this West African nation, and I was invited to join them for the weekend.

Drawing upon about 30 civil servants, teachers, and students who perform on a rotating basis, the troupe is dedicated to introducing new ideas to the rural populace through comic drama. *Atelier* has been performing entertaining and didactic pieces in the theater forum format for the past two years; this was to be the last of 14 performances commissioned by UNICEF and the Ministry of Health. The Forum is just that – a medium for discussion and exchange of ideas between actors and audience. It draws the audience into the action and verifies that the message is being understood and reinforced through peer pressure.

Setting Up

After traveling all night, we reached Gorom-Gorom in the far northern Fulfulde-speaking region at 10 the next morning. After a meeting with the local Ministry of Health officials, final arrangements were made for the play's performance in the town's open-air meeting place. Prosper Kampaore, director of

(**Morrison** *continued on page 6*)

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

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(**Booth** *continued from page 1*)

When *AVANCE* researchers described interactive radio instruction to teachers, they understood immediately how useful it would be in their classrooms. Nevertheless, they did not want to be put in the position of seeking community support and funding to purchase a product that would benefit teachers more than parents. They, instead, suggested that *AVANCE* sell the supplementary interactive radio materials directly to them, the teachers.

This market research led to the selection of first grade school teachers and opinion leaders such as officials in the MOE and teachers' unions' as the primary audience, and parents of first grade children as the secondary audiences.

What is the Product in Interactive Radio?

AVANCE selected mathematics as the introductory subject for interactive radio instruction because initial research showed that teachers thought it was the most difficult discipline to teach. Historically, interactive radio mathematics projects have concentrated on written practice. To facilitate this new approach, *AVANCE* developed a mental arithmetic course to complement the written exercises taught with the textbook and coordinated activities with the Ministry of Education since it was distributing new textbooks as a part of the Efficiency in Primary Education project.

Since teachers had reported to the researchers that they would welcome more formal support in their work, the "product" *AVANCE* sold was membership in the Interactive Radio System (IRS). In 1987, membership was restricted to first grade teachers in six "states" totaling 3,500 teachers for 98,481 students. It was optimistically projected that 60 percent of the market would purchase membership. IRS membership permitted teachers to participate in training sessions, meetings, and other activities that were going to be developed. Also, teachers received discounts on future educational products developed by *AVANCE*.

The "product" teachers could purchase during this pilot year was *La Familia de los Numeros (The Number Family)*, a series of interactive radio programs to teach mental arithmetic to first grade children. For US$6 a teacher (the average monthly salary of a teacher is US$300) would receive the supplemental materials necessary to use *The Number Family*. This includes four large educational posters printed on durable plastic, a Teacher's Guide which explains interactive radio and the teacher's role, and a large colorful plastic bag for carrying these and other materials. For US$45 a teacher could purchase these materials plus a General Electric radio (which was used in the Dominican Republic RADECO project and proved durable for high volume use over time) As a special introductory offer, each teacher who purchased *The Number Family* received free notebooks for each of their first grade students.

IRS membership and *The Number Family* were sold to teachers by MOE District Supervisors. This was an important decision for the success of the marketing strategy because supervisors are the MOE people with whom teachers have most direct contact. Their administrative role gave them authority over the teachers which facilitates monthly collections from teachers who decide to buy the program on installment. Moreover, by involving the supervisors, *AVANCE* enlisted the active participation of opinion leaders within teachers' unions. It also reduced the cost of distribution and sales.

Sales were made during a series of one-day "In-Service MOE Training Courses." An *AVANCE* staff member was present at most sessions as a resource person, but the interaction was basically between the supervisor and the teachers. One of the keys to successful sales was the way the sessions were conducted. Knowing that most of the teachers had already heard about *The Number Family*, *AVANCE* staff wanted the teachers to *experience* what the product could do for them and to see for themselves how children responded to an interactive program. So they brought in to each training session eight to ten first grade children who had never heard the program and played a tape of one of the broadcast lessons.

Product Positioning

An effective marketing strategy builds on product positioning. In marketing the "product position" is a clear definition of why the target audience should use the product, of what makes it better than other similar products. This positioning is then emphasized in all of the promotional materials to make them part of a cohesive marketing package. The product positioning for *The Number Family* emphasized that 1) children learn mathematics quickly and easily with the program, 2) *The Number Family* supports teachers, it does not replace them, and 3) *The Number Family* follows the official curriculum and is recognized by the Ministry of Education. Each of these points responded to the barriers to product use identified in the market research.

NOTICE
The Clearinghouse Has Moved

The Clearinghouse on Development Communication has been moved to a new location. After September 15, 1988 the address and telephone number will be:

Clearinghouse on
Development Communication
1815 North Ft. Myer Drive
6th Floor
Arlington, Virginia 22209, USA
Telephone: 703-527-5546

(**Booth** *continued from page 2*)

Promotional Activities

Promotion, publicity, and public relations were also an important component of the marketing strategy. Radio, television, newspapers, and interpersonal activities were used to inform teachers, parents, and opinion leaders about the product and to create demand for its purchase. "Learning together – it's easy with *The Number Family*," the slogan reflecting the product positioning, was featured in all of the promotional materials. In addition, *The Number Family* song and jingle were played on radio and television spots and programs, and a logo personifying the numbers one through five was printed on all the program materials (see illustration).

The first promotional thrust was a radio spot recorded by the Minister of Education inviting teachers to participate in *The Number Family*. The text of the spot was featured in several newspaper advertisements published at the same time. This formal endorsement was the key to teacher acceptance. Another more lively radio spot was designed to encourage parents to support teachers' purchase and use of *The Number Family*. A third radio spot was designed to encourage departmental pride in having been selected to participate in the Interactive Radio System and *The Number Family*. These spots were recorded locally in each department to reflect departmental differences, a first in Honduran marketing. Radio spots were broadcast on two national and 17 local radio stations for three months. Other activities included a press conference, a three-minute television spot, several appearances on the most important television newscast, weekly newspaper advertisements, and constant contact and public relations with the Ministry of Education and teachers' unions' officials.

Private Sector Involvement

AVANCE was originally initiated as a mechanism to involve the private sector in education. In fact, members of the *AVANCE* Board of Directors are leaders in the business community. Indeed, the private sector had a pivotal role in the successful establishment of *The Number Family*. Possibly the most important effect of the private sector was to provide a protective umbrella of status for *AVANCE* in general and *The Number Family* specifically – protecting it from political and press criticism.

The president of the Board of Directors, the owner of Honduras' largest radio and television network, is donating air time, worth US$150,000, for the program. The product was launched on prime time national television during the announcement of the national lottery. The Teacher's Guides and plastic wallcharts were subsidized by Pepsi Cola, and the student notebooks were sponsored by CocaCola. *AVANCE* also obtained discounts on media placement, access to media reporters, and numerous appearances on the national news because of this private sector involvement.

Costa Rica Purchases *The Number Family*

In May, a delegation from the Costa Rican Ministry of Education visited Honduras to observe the radio programs in action. Ultimately, they purchased *The Number Family* for use in the Costa Rican school system. *AVANCE* will edit the programs to make them more appropriate for their educational system, and their staff is providing Costa Rica with technical assistance in planning, management, scriptwriting, radio production, and marketing.

AVANCE is now monitoring the use of *The Number Family* and in September will carry out a usage study to develop a profile of users, lapsed users, and nonpurchasers. This information will be used to plan their 1989 marketing strategy. Anecdotal feedback currently indicates that there has been some drop-off in product usage. There have been problems coordinating the radio lessons with the textbooks; some rural teachers say the programs go too fast, whereas some urban teachers feel the program delivery is too slow. *AVANCE* will also be testing secondary products such as *The Number Family Songbook*, counters, and *The Number Family* cassettes scheduled to be introduced in 1989.

1 2 3 4 5
La Familia de los Números
"Aprender juntos es más fácil"

Lessons Learned

Emerging from this trial combination of social marketing and interactive radio instruction are some interesting lessons learned.

1. *Interactive radio sells itself*: Interactive radio satisfies both the user (children) and the client (teachers). This is unlike most other social marketing products such as ORS, contraceptives, and even breastfeeding that may have unpleasant consequences for the user. Once users have tried interactive radio, they want to use it again . . . and again!

The success of interactive radio instruction, including its acceptance and popularity among users, has always been the effectiveness of the interactive radio methodology itself. Beyond that, the success of IRI is, in particular, a function of production values. In this sense there is an important analogy to commercial broadcast programming: it is not the network's preseason publicity, but the audience ratings that determine the programs' success or failure. Even the best promotional strategy cannot sell a product that does not meet the needs of the consumer. On the other hand, a "good" product cannot be successfully launched in the marketplace without the proper pricing strategy, distribution system, and promotion or publicity.

2. *Interactive radio is a controversial product*: Education has been moved directly from free distribution through the public sector to marketing through the private sector. Education has always been free, thus marketing it through the private sector is a fundamental and radical departure from past experience. Therefore, political and philosophical resistance will be encountered with the sale of educational products.

3. *Secondary audiences must be included in the marketing strategy*: The support of opinion leaders is very important to product acceptance. If such leaders are not actively involved in the development and implementation of the interactive radio it will fail before reaching its primary audience of children and teachers.

4. *A high quality radio must be used for marketing success*: At first, *AVANCE* did not want to market radios because they are unwieldy and difficult to distribute. They changed their policy, however, when they observed the problems teachers encountered when less reliable radios were used that could not withstand the high volume and daily wear and tear of a classroom environment.

5. *Research is essential for marketing success*: The market research conducted with parents, teachers, opinion leaders, and children was the basis of the marketing strategy. It provided essential information about barriers and opportunities and kept *AVANCE* from making costly mistakes.

For more information about this activity, contact *AVANCE*, Apartado 2040, Tegucigalpa, Honduras. ■

Elizabeth Mills Booth is Social Marketing Adviser for the Honduras Radio Learning Project/AVANCE, which is managed by the Academy for Educational Development. She has worked primarily in Latin American countries in various capacities in the application of mass media to increase the quality and equality of education.

Dr. Jose Carleton Corrales Calix is General Manager of AVANCE. He was the director of the Honduran National Teachers College for 13 years, and a participant in the first National Committee on Educational Reform in Honduras.

Briefly Noted

by Pat Simons

- *Rapid, Low-Cost Data Collection Methods for A.I.D.* is a guide to data collection methods that require fewer resources and less time to generate data than many more rigorous and more widely used methods such as censuses, sample surveys, and detailed ethnographic descriptions. The objective of these less rigorous methods, which are sometimes referred to as "rapid reconnaissance," "rapid appraisal," or "short-cut methods," is to provide timely information with a moderate investment of time and resources.

This publication provides managers with general guidelines on the use of five rapid, low-cost data collection methods. The five methods discussed are 1) key informant interviews; 2) focus group interviews; 3) community interviews; 4) direct observation; and 5) informal surveys. Each method is described and then discussed in terms of its strengths and limitations, the situations in which its use would be appropriate, the skills and time required, and the products that should be furnished at the end of the study.

This publication (PN-AAL-100) is available in the U.S. for US$2 (plus $1.50 for postage or US$3.50 for overseas mailing) from: A.I.D. Document and Information Handling Facility, 7222 47th St., Suite 100, Chevy Chase, MD., 20815, USA

- In the publication *Pre-Census Communication Campaigns Guidelines For Census Planners*, Najib Assifi synthesizes the lessons the UNDP Asia and Pacific Programme for Development Training and Communication Planning (UNDP/DTCP) has compiled from its experiences assisting a number of Asian countries with their pre-census communication campaigns.

Included in this 17-page booklet are discussions on the objectives and strategies of a pre-census communication campaign; the place of interpersonal and mass media channels in such campaigns; the importance of conducting audience research before developing the census message; staff training requirements; and the need for including a monitoring and evaluation system in the campaign plan. It concludes with a list of planning guidelines.

It is available from the Publications Editor, UNDP/DTCP, P.O. Box 2-147, Bangkok 10200, Thailand. The cost is US$2 (via surface mail) or US$3 (via air mail). The UNDP/DTCP publications list, available free from the above address, includes a number of publications on the census communication campaigns in Afghanistan, China, and Indonesia as well as titles on project planning, management and administration; training; materials use and design; and technical cooperation.

- *Small Projects' Training Manual for Administration, Community Development, Water Supply, and Sanitation*, is an excellent three-volume manual for small development projects with 20 to 40 staff members. It can be used as a classroom training guide, for individual study, or as a reference tool during the development and implementation stages of a project.

Volume 1, *Administration and Community Development* provides the most general information covering basic project administration procedures such as planning, feasibility studies, recordkeeping, budgets, meetings, and vehicle maintenance. The second half of this volume is a well-written discussion of community development and its implementation within a project.

Volumes 2 and 3 focus specifically on water supply and sanitation. The discussions and step-by-step instructions are thorough, easy to follow, and accompanied by well chosen, clearly drawn illustrations. These are practical how-to manuals dealing with technical matters related to the construction and maintenance of wells and latrines.

The manual was produced by the Munuki Water and Sanitation Project, of the Sudan Council of Churches. The volumes can be purchased separately or as a set. Volume 1 (267 pages) is DM15 or US$8. Volume 2 (515 pages) is DM29 or US$15.44, and Volume 3 (195 pages) DM11 or US$5.86. The set is DM55. Postage is DM8.40 (surface mail) to countries other than Germany. Orders should be sent to Gumberger Rudolf, Postgironkonto Nr. 34660-809, BLZ 700 100 80, Postgiroamt Munchen, West Germany. Information can also be obtained from the Publicity Office, Sudan Council of Churches, P.O. Box 469, Khartoum, Sudan.

- *My Name Is Today* by David Morley and Hermione Lovel begins by telling the reader that 12 to 18 million children under the age of five die in the world each year and that 95 to 98 percent of these deaths occur in

(**Briefly** continued on page 10)

International Conference Agricultural Communication

by Gail McClure

An international seminar on agricultural communication was held in Ilorin, Kwara State, Nigeria on June 21-24. Nearly 100 participants from Africa, Asia, and North America attended the conference, which was co-sponsored by The Agricultural and Rural Management Training Institute (ARMTI) and the Canadian International Development Agency (CIDA).

The theme of the conference was "Communication at the Grassroots." The program was divided among four main issues: 1) communication at the grass roots, 2) the role of government in agricultural communication, 3) the mass media and agricultural communication, and 4) barriers to agricultural communication that need to be transcended.

Professor Njoku Awa, Department of Communication, Cornell University, gave the keynote address, "Communication at the Grassroots: Towards a Communication Strategy for Mobilizing Human Resources for Rural Development in the Third World." (See box for summary of this paper.)

Speaking to the conference's main issues, participants presented papers on the communication of agricultural information between rural and urban areas, and from the researcher to the farmer, to women, and to nomads. Other papers discussed the collection, dissemination, and financing of agricultural communication, and the use of radio, television, and print media for agricultural communication. Echoing one of the points of Dr. Awa's address, was considerable discussion of the use of indigenous communication systems.

At the end of the seminar the delegates adopted 30 resolutions reflecting the agreed upon importance of institutionalizing and professionalizing communication in agriculture and rural development. A selection of these resolutions follows:

Issue I. Communication at the Grassroots

1. Research should be based on actual farmers' activities so that findings can be relevant and easily adoptable.
2. Traditional methods and modes of communication should be enhanced, modernized, and utilized.
3. Farmers should be used more to teach other farmers.
4. The school system should be integrated within the agricultural communication programs.

Issue II. The Role of Government

1. Governments should formulate and enact policies of agricultural communication to be incorporated into long-term agricultural plans.

(**McClure** *continued on page 5*)

(**McClure** *continued from page 4*)

2. Governments should strengthen linkages between research, extension services, and farmers, encourage two-way communication, and pay particular attention to the monitoring of feedback from farmers.
3. Governments should encourage an integrated, multi-disciplinary approach agricultural information generation and dissemination, particularly at the grassroots.

Issue III. Mass Media and Agricultural Communication

1. More agricultural journalists and communicators should be trained.
2. Agricultural writers and communicators should be employed by research institutes, ministries of agriculture, and all other agro-related agencies to propagate agricultural communication in a way that is easily absorbed by the end-users.
3. The mass media should endeavor to be an effective link between research and the public by regularly contacting research centers and agricultural development programs.

Issue IV. Breaking Barriers to Communication

Barriers to agricultural communication were listed under the following headings: social/cultural barriers, infrastructural barriers, political barriers, economic barriers, marketing barriers and topographical barriers. Some of the recommendations were as follows:

1. Social/cultural barriers can be addressed by 1) mass education/adult literacy programs; 2) education of women; and 3) participation of rural communities in project formulation and implementation.
2. Political barriers can be addressed by 1) encouraging grassroots representation at policy formulation levels; 2) getting rural communities organized; and, 3) removing discriminatory practices and policies, particularly against women.
3. Economic barriers can be addressed by 1) strengthening programs to ensure effective farmer cooperatives; 2) increasing credit facilities to farmers on terms acceptable to them; and 3) removal of middlemen.

Participants also testified to the need to strengthen the international network among agricultural communicators. According to Dr. O. Makinde, the conference chairman, "Participant enthusiasm was so high that plans are already underway for another communication conference to be held within the next two years, either in Africa or Asia." ■

Gail McClure is Vice President for Agricultural Programs at the Academy for Educational Development. She previously was a communication specialist at the University of the West Indies, Agricultural Extension Department, and the Associate Director of the Minnesota Extension Service at the University of Minnesota.

The following is a summary of the keynote address, "Communication at the Grassroots: Towards a Communication Strategy for Mobilizing Human Resources for Rural Development in the Third World," by Dr. Njoku E. Awa at the International Conference on Agricultural Communication and Rural Development held in Ilorin, Nigeria, June 21-24, 1988.

Overcoming Impediments to Communication for Rural Development in the Third World

Dr. Awa stated that the conference theme, "Communication at the Grassroots," acknowledged the need to explore communication strategies for rural development other than those rooted in the traditional top-down conception of communication, and he identified four impediments to development communication in agriculture and rural development. These impediments, he said, are "lack of participation in the identification, formulation, and implementation of development programs; failure to consult indigenous knowledge; considering Western media to be the only instruments of mass communication; and the benign neglect of women in rural development."

Participation

While participation is broadly recognized as a necessary strategy for intervention programs, many projects, "especially those designed by government agencies... continue to ignore local needs, neglect local resources, and alienate local groups." Practice, said Dr. Awa, fails to measure up to the rhetoric on participation. This is partially due to the failure to recognize that partial involvement of local people is not the same thing as participation. Participation, he continued, "requires 1) mental and emotional involvement, not just mere physical presence; 2) a motivation to contribute, which requires creative thinking and initiative; and 3) an acceptance of responsibility, which seldom occurs when solutions are imposed by outside authorities."

Also limiting true participation is the fact that government agencies too often see themselves as dispensers of aid. "Under these conditions, involvement of local people in the formulation and execution of development projects can be seen as a threat to the beneficiary role of governments and their functionaries. It would seem awkward, for example, for a development agency to go to a local community without a clear agenda, and to attempt instead to formulate an understanding of specific problems in concert with local people."

Indigenous Knowledge

Local knowledge, which is based in part on a community's interaction with its environment, is seldom, if ever, consulted in development activities, said Dr. Awa. He encouraged development communicators to look for ways to mobilize local resources and promote increased dialogue between groups with technical and scientific knowledge and those with indigenous knowledge. He said that "indigenous knowledge can be used in conjunction with scientific knowledge to improve the conceptualization of research problems and the development of instruments."

Awa pointed out that many early studies in development communication, including those based on theories of diffusion as well as some that were not, often portrayed the mass media as "mobility multipliers" and media exposure as a necessary condition of innovativeness. For instance, Daniel Lerner, writing in 1958, described urbanization, literacy, mass media, and participation as critical predictors of modernity.

While not doubting the ability of modern media to create awareness and to promote educational and other development objectives, Awa speculated that attention has been deflected from Third World participants investigating the relative effectiveness of their own traditional media. "... Third World countries felt that their own media, like David before Goliath, seemed inadequate for proving the promise of the mass media as the 'mobility multiplier' in national development." The effective adoption, development, and refinement of traditional media, which will truly provide communication at the grass roots level, remains a communication challenge for the nineties.

Role of Women in Development

Women account for 60 to 80 percent of the agricultural labor force in some parts of Africa. The Arusha Strategies for the Advancement of Women in Africa identify numerous obstacles to their full participation. Dr. Awa noted that women in Africa often perform a variety of tasks in the field and in the homestead, yet their contributions to agricultural production are not given adequate recognition. "In many countries women are still invisible, their enormous contributions to human, economic, and cultural development notwithstanding... The situation calls for greater attention to the education and training of women, both as extension agents and as leaders," said Awa.

Until these structural impediments are more adequately addressed, Dr. Awa suggested that communication in the fields of agricultural and rural development will not be fully realized. ■

Printing Industry Training

The United Nations Industrial Development Organization (UNIDO) is organizing its annual course to "further the educational qualifications of leading managers in the printing industry from developing countries."

The course aims to support the development of strong national printing industries. Topics may include these, which were covered as well in last year's three-week seminar.

- Development trends and the use of modern procedures and machines of printing technology
- Structure and principles of management of printing works
- Control, assessment, and guarantee of the quality of printed products
- Training of qualified employees and managers for the printing industry
- Development and use of modern technologies such as phototypesetting, electronic reproduction, offset printing, and efficient binding
- Planning, designing, construction, and reconstruction of printing works

Applications for the UNIDO training course are to be sent via national governmental authorities to Ms. Irene Lorenzo, Head Training Branch Division of Industrial Operations, UNIDO, Vienna International Centre, P.O. Box 300, A-1400, Vienna, Austria.

Register of Development Expertise

The *Register of Development Expertise in Asia-Pacific* contains information on 322 development experts involved in research into the broad area of economic and social development in the region. The *Register* is published jointly by the Asian and Pacific Development Centre (APDC) and the Association of Development Research and Training Institutes of Asia and the Pacific (ADIP).

The publication places special emphasis on categories such as agricultural and rural development, industrial development, public management, trade and regional cooperation, energy planning and management, human resource development, population, and women in development.

Experts are listed alphabetically and are profiled in the first section; the second section contains indexes to the experts' fields of specialization and expertise.

Priced at US$8 plus postage and 200 pages long, the *Register* can be ordered from the Executive Secretary, ADIPA Secretariat, c/o Asian and Pacific Development Centre, Periaran Duta, P.O. Box 12224, 50770 Kuala Lumpur, Malaysia.

(**Morrison** *continued from page 1*)

the *Atelier* troupe, requested some last-minute publicity and quite soon you could hear a loudspeaker blaring throughout the town, reminding the inhabitants of the not-to-be-missed performance that would take place that evening.

Every member of the troupe had an assigned task, and, within an hour, the stage and sound system were set up. The villagers began arriving at dusk and by 8 p.m. there was an audience of 300 to see *Halte à la Diarrhée* (Put a Stop to Diarrhea). The play opens with a vendor trying to sell bad goat meat at the market. Even though this vendor is chased away by the legitimate butcher, a man whose family has had no meat for some time unwisely purchases the suspect meat despite being warned by the butcher.

He proudly brings it home for his family, but when he shows it to his wife, she refuses to prepare it. Their children, a boy and a girl, eagerly beg her to cook it, but she agrees only when her husband orders her to prepare it, saying she will not eat it or feed it to their baby.

After eating the meat, the husband and children become ill. The wife begs her husband to take the children to the clinic as their diarrhea becomes more severe, but he refuses, saying it is a waste of their money. Instead he brings in a traditional healer who administers enemas to the children, but the girl soon dies of dehydration.

A medical doctor visits and scolds the man for this waste of his daughter's life. He explains how a simple solution of sugar, salt, and water could have saved her. He demonstrates by filling a sponge with water and, after squeezing it dry, drops it to the ground, likening this to the human body when fluids are lost and not replaced. This is a powerful image – one that noticeably impresses audiences with its graphic message that fluid loss through diarrhea can result in death.

The Audience Joins In

The underlying comedy in this 30-minute, five-act play has to be seen to be appreciated, but the humor is what holds the audience and brings the message home. After the play ended, the director invited spectators to come forward to give their interpretations of various roles or to assume a role and portray the character as she or he thinks it should be played. Finally, the audience is invited to come on stage, take the microphone, and answer questions on the causes of diarrhea and what can be done to help prevent dehydration and death, particularly among babies.

There was no shortage of volunteers among the children; even the men came up to recreate the role of the father. But, in this traditional Islamic community, women were reluctant to volunteer, especially since it would be to recreate a role where the wife must stand up to her husband. This situation was handled with tact and persuasion by the actors and the director (who plays the doctor); eventually a woman came forward and admitted that she always does what her husband requests, but in these circumstances she would have burnt the meat to a cinder rather than have her children eat it. And yes, she can remember the oral rehydration solution proportions, and yes, she will fix it for the next child who has diarrhea, or get an ORS (oral rehydration solution) sachet from the local clinic.

A middle-aged man from the audience recreated the role of the father, defending his decision not to take his children to the clinic by explaining how expensive and time-consuming it is. A Ministry of Health official in the audience responded by recreating the role of the doctor. A small boy volunteered to repeat the steps in preparing the oral rehydration mixture. When he gave the wrong proportions, he was corrected with yells and jeers from other boys and was immediately replaced by another eager volunteer who knew the correct proportions and added that the water needed to be boiled. He was rewarded with an ORS sachet. These exchanges lasted nearly an hour with many amusing role recreations. Traditional attitudes were dealt with, and humor was applied to several difficult situations.

As the evening wore on, the space between the audience and the actors became smaller and smaller. By the end of the evening, the children were under the actors' feet, mesmerized by the music, the performance, and the message.

The message was clearly understood and readily accepted; the medium is very popular, and the communication, in both directions, is of a high quality. The director is convinced of the value of his efforts. The next night the same play was performed in another town. We repacked the Land Rovers for the long trek home, arriving in time for the actors to return to their jobs in the civil service, at the university, or in the commercial sector in Ouagadougou.

Atelier Theatre Burkinabe is on the road as many as three weekends a month. The remuneration is small, but the actors feel their contribution toward saving children's lives is their greatest compensation. Rural Burkinabe communities have benefited tremendously from this innovative, entertaining form of development communication. ■

Joy Morrison is a doctoral candidate at the School of Journalism and Mass Communications at the University of Iowa, Iowa City, Iowa, USA. She is currently working on her dissertation on the use of theater as a communications medium for rural social development in Africa.

Rethinking Development Support Communication

by Silvia Balit

Communication occupies an ever more important place in development policies and programs and is now coming into sharper focus as experience is reviewed and evaluated.

The concept of Development Support Communication (DSC) was initially promoted by several groups within the UN System. The Food and Agriculture Organization (FAO) was quick to recognize the importance of the emerging discipline, and in 1969, the Development Support Communication Branch was formed as a field oriented unit within the Information Division. It was later incorporated as a sub-program within the FAO Rural Development Program with a broad mandate to service requests from member governments for assistance in rural communications. Development Support Communication currently forms an essential component in many spheres of FAO activities including forestry, fisheries, and agriculture. An integrated approach to rural development has been applied wherein communication support also has been provided to women, population, health, nutrition, and literacy programs.

FAO's Mandate

FAO's mandate for communication in support of rural development was reinforced by the 1979 World Conference on Agrarian Reform and Rural Development (WCARRD), which placed special emphasis on the participation of the rural poor, not simply in sharing the benefits on development but also in sharing the responsibility of development decision making. The Conference concluded that "rural development strategies can realize their full potential only through the motivation, active involvement, and organization at the grass-roots level of rural people with special emphasis on the least advantaged, in conceptualizing and designing policies and programs and in creating administrative, social, and economic institutions, including cooperative and other voluntary forms of organization, for implementing and evaluating them."

In the light of such an approach, if development strategies are to be successful they must aim at engendering "understanding and awareness of the problems and opportunities of rural people at all levels and improving the interaction between development personnel and the masses through an efficient communication system." In effect, this means that no development strategy is complete unless communication policies and activities are incorporated into the diagnosis of needs, and into the design and implementation of priorities selected for a development action.

When FAO's DSC activities began, little was known about how to use communication among largely illiterate populations in developing countries for developmental purposes. The general assumption was that the mass media could have a major impact on the problems of transferring ideas and technology to rural populations in developing countries. This assumption soon proved mistaken; it was based on an over-simplification of development problems that often overlooked peoples' cultures, traditions, and values. Development communication is now seen more as a social process, designed to seek a common understanding or consensus among all the participants of a development initiative, leading to concerted action. The media are now seen as useful tools to help to bring about this process, and to assist in learning. Their use is not an end in itself, and interpersonal communication plays a major role.

> . . . the common denominator [to] successful development communication endeavors is "clear strategy and rigorous management."

The Expert Consultation

After almost 20 years of action-oriented programs, including a number of innovative and successful experiences as well as lessons learned from failures, FAO felt that there was a wealth of experience that warranted an in-depth analysis. For this reason an Expert Consultation on DSC was organized in June 1987. For the first time, 15 rural communication specialists gathered in FAO to analyze past experience and to provide guidance for future activities. They came from different backgrounds, experiences, and regions, including university professors, field practitioners, DSC specialists from within the UN System, and outside.

Yet, notwithstanding the differences in experience and approaches, a common understanding and a consensus on the best directions to take for the future emerged during the five days of hard work and discussions. A state-of-the-art background paper, describing the conceptual and historical development of DSC, and a series of case studies analyzing different methodologies and approaches as well as the impact achieved in a selected number of DSC programs, were provided to the Expert Consultation as background material.

To begin with, the meeting analyzed the role of communication in rural development today and some of its essential features. The participants felt that "the essence of involving rural people in the process of their own development lies in the sharing of knowledge. Sharing is not a one-way transfer of information; it implies, rather, an exchange between communication equals. On the one hand, technical specialists learn about peoples' needs and their techniques of production; on the other, the people learn of the techniques and proposals of the specialists."

It followed that the outcome of useful sharing of knowledge is not so much the replacement of traditional techniques by modern ones as a merging of modern and traditional systems to produce something more appropriate that suits the economic and technical capacities of the people as well as their cultural values. The ultimate purpose of knowledge-sharing is to enable rural people to take more control over their environment, and over agriculture, health, habitat, and other elements which so critically impinge upon the quality of life.

Barriers to Sharing

The problem has been that sharing of knowledge has not taken place spontaneously between development agents and rural people because neither have possessed the skills necessary to overcome certain barriers. Foremost among these barriers have been socio-cultural ones; development efforts have often been undermined by incompatible communication approaches, by a clash of differing levels of education and literacy and differing use of language. Other important barriers have been the divergent interests of the parties concerned and differing perceptions of the realities of a given situation. Communication for development is a response to the need to overcome such barriers. Communication activities set out to reinforce the cultural identity, local values, and knowledge of people as an avenue to their active participation in development.

The experts attempted to define DSC as follows: "Development Support Communication (DSC) is part science, part art, and part craft:

- It is part science because it draws heavily on social science theory, methodology, and general philosophy.
- It is part art because it incorporates artistic talents and skills such as graphics, photography, radio, video, social marketing,

(**Balit** *continued on page 12*)

A Communicator's Checklist

1

Primary Health Care: A Guide for Research in the Human Sciences, by J.O. Igene, J.O. Chikwem, B.A. Omotara, and S.A. Oyegbile. (Maiduguri/Ibadan: Universities of Maiduguri/Ibadan Presses, 1986) 198 pp.

Although primary health care (PHC) is high on the agendas and curricula of most African governments and medical schools, there are few existing documents and reference materials on this subject and still fewer relevant textbooks that focus solely on the African experience. *Primary Health Care* is a ground-breaking text that partially addresses this problem.

Acknowledging the lack of information and research on primary health care, the University of Maiduguri, in concert with the World Health Organization (WHO) and the Nigerian Federal Ministry of Health, organized a workshop on this theme. These compiled proceedings should help to motivate universities to promote and facilitate primary health care by stimulating interest in research and by emphasizing the role of the human sciences in this area.

Section one examines the role of epidemiology, biostatistics, and immunization in primary health care. It also addresses the uses of drugs and vector control in communicable endemic diseases. Section two highlights the relationship between socio-economic status and health problems, population dynamics, and maternal and child welfare in primary health care. Section three focuses on food, water supply, and sanitation, specifically tackling the issues of food storage, preservation and processing in primary health care. This section also includes presentations on nutritional requirements in health care, disease prevention, and cure. Another issue covered is the importance of environmental hygiene, clean water, and waste disposal as primary health care strategies. Health education and primary health care is the theme of Section four. The role, objectives, and methodology of health education in primary health care are critically analyzed here.

Interdisciplinary Approach

The strength of this book lies in its interdisciplinary approach to the crucial problem of primary health care in Africa. All contributors, who are for the most part experts in botany, biology, medical practice, social science, and engineering, contributed enthusiasm and innovative ideas to the workshop. As a result, readers receive a comprehensive picture of what primary health care strives to achieve from multiple vantage points.

Unlike other books where the frame of reference is Europe or the United States, the examples in this volume are gleaned solely from Africa. This makes it considerably more worthwhile and relevant to the African reader as well as other interested health and social program practitioners in developing countries.

Also welcome additions are policy option discussions at the end of each chapter. These provide sharp contrast to so many publications that present theories, descriptive passages, and criticisms but lack concrete policy options with which to replace the criticized policies.

Above all, this book is well written. It uses lucid English and avoids unnecessary jargon and technical terms that often characterize books in this field.

What is Missing?

Two flaws of this book, however, are the absence of a section devoted to communication and the inadequate number of graphic illustrations. Communication and primary health care are inextricably interwoven; indeed, the communication component is crucial to the success of PHC.

Its second shortcoming, a paucity of illustrative graphs, diagrams, and pictures, is equally regrettable. With a topic as fundamental and adaptable to illustration as is primary health care, more space and effort should have been devoted to presenting the statistical information in a way that would have better highlighted noteworthy facts and figures.

Criticisms notwithstanding, *Primary Health Care* is a pioneer publication with great utility to Africans as well as to other interested observers of the African health scene. It will be helpful not only to medical practitioners, students, teachers, and policy makers, but also to the person whose survival under harsh environmental conditions depends upon maintaining good health. ■

This book is available in hardcover for 30 Nigerian Naira (US$6) and in softcover for 19 Nigerian Naira from the University of Maiduguri Bookshop, PMB 1069, Borno State, Nigeria, or from Northern Nigerian Publishing Company, N.N.P.C., Kaduna, Nigeria.

Jerry Komia Domatob is a lecturer and Acting Head of the Mass Communication Department at the University of Maiduguri. He has worked as a free-lance journalist with Radio Canada International and as a translator. He is currently working on two books.

2

Communication, Development and the Third World by Robert L. Stevenson. (White Plains: Longman Inc., 1988)

The history and background of the New World Information and Communications Order (NWICO) is set forth and partially documented by Robert L. Stevenson in *Communication, Development and the Third World.*

It is an important history, not only because of the role the debate on NWICO played in the U.S. withdrawal from Unesco, but also because it provides the underpinnings for current efforts in telecommunications development. Many lessons learned during NWICO's beginnings should serve as guides for policymakers dealing with communications technology in the developing world during the 1990s.

NWICO's 30-year history started with Wilbur Schramm at Stanford University and Daniel Lerner at Massachusetts Institute of Technology, who pioneered the concept and launched programs to use media as a tool for development. As a student of Schramm's in 1960 and in 1963 as a Peace Corps staff member working on the Colombia educational television project, I recall what Stevenson repeatedly refers to as Schramm's optimistic scenario of mass media as "multipliers of knowledge, experience, and inspiration." I remain optimistic about mass media's potential, but I find Stevenson's book helpful in identifying the many pitfalls along the way toward realization of that potential.

Schramm greatly influenced the thinking within Unesco through the years, and, as Stevenson points out, development communication has come full circle with the creation of the International Program for the Development of Communication (IPDC) 20 years after Schramm's *Mass Media and National Development* appeared in 1964. The early promise gave way to disappointment and then to radical alternatives before returning to the reality of lingering Third World needs and enlarging gaps between these countries and the West. While the technology had changed, costs had plummeted, and developing countries could theoretically assemble whatever communications structure they wanted, "the important difference between communication development in the hopeful 1960s and the skeptical 1980s was not technology so much as the purposes to which the technology would be put."

Stevenson traces the mood swings of politicians and practitioners during the 60s, 70s, and 80s. He probes the role of mass media and the fierce debates around NWICO and development theory. Anecdotes provide useful insights about the MacBride Commission report (an assessment of the political issues of international communication in the 1970s) and the outcomes of the report's recommendations. A brief record of communications development is followed by a review of developing nations news agencies, the state of the media in these nations, and the press freedom issue.

There was a significant focus in NWICO on the role played by the Western press in developing countries. Stevenson's description of the global news "networks" and their efforts to encourage "news for development" is an important contribution to the literature and to our understanding of this phenomenon. In 1987 I taught a graduate course on these issues and had to search through old files and interview eyewitnesses to prepare course materials. I even assigned the MacBride report as a text – difficult reading for the uninitiated. *Communication, Development and the Third World* will make an ideal textbook for such a course.

In the final chapter Stevenson reasseses communication development by describing the contributions and failures of Unesco including the collapse of the radical alternative advocated by NWICO. He goes on to summarize lessons learned during this "first generation," among them the recognition that 1) hitching rapid national development to the locomotive of communication does not work if supportive government policies do not exist; 2) grand designs to shift the financial or information resources of the West to the developing world were politically unrealistic and misguided; and 3) Third World development needs an increase in both wealth and information more than a reshuffling of that which already exists. Addressing some of the needs of developing countries, the author suggests that governments practice greater honesty and public accountability for what they do and do not do to promote freedom of information. Furthermore, Stevenson observes, it will be increasingly harder to keep out unwanted information and to maintain a monopoly over its flow as people have greater access to inexpensive ways of obtaining and disseminating information.

Turning in the end to the responsibility of the West, Stevenson believes that, particularly in the United States, the media has been appallingly inadequate in its coverage of Third World affairs, flying in the face of an identified desire among the U.S. population for more news, especially nondisruptive, nonexceptional coverage of the lives of three-quarters of the world's population. He also suggests that the West, both its government and its media, needs to expand its still meager development aid programs so that Third World countries can benefit from the rapid developments of technology.

In conclusion, Stevenson suggests that "communication has the potential to contribute constructively if modestly to Third World development, and those in the West with the responsibility and authority to shape policy can influence constructively if modestly the size and direction of the contribution."

With this book, Longman Press and the Annenberg School of Communications have added another important contribution to their list of works on communication. Robert Stevenson has done a commendable job of sharing the results of his monitoring and observations of the NWICO history. Its value is further multiplied by the use of no fewer than 31 pages for sources and bibliographic references.

This book is available for US$35.95 (hardcover only) plus shipping and handling from Longman Inc., 95 Church Street, White Plains, New York 10601-1505, USA. ■

Lynn Gallagher is president of Telecom/Telematique International, a telecommunications consulting and education firm.

On File at ERIC

by Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files include papers and reports on satellite communications in developing nations, distance learning systems, structures, and projects, and computer education for developing countries. All five of these documents are available in microfiche and two are available in paper copy as well from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia, 22304 U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. (VISA and MASTERCARD charges are accepted by EDRS.) U.S. requesters should calculate postage as follows: 3 microfiche = 1 ounce, 75 microfiche = 1 lb.; and 75 pages of paper = 1 lb. Paper copies of APEID publications are usually available through UNIPUB, 4611-F Assembly Drive, Lanham, Maryland 20706-4391, USA. **The ERIC Clearinghouse on Information Resources cannot fill orders for these documents.**

● Pelton, Joseph N. *A New Era Begins: Satellite Communications and Development.* 1987, 19pp. (ED 289 457)

This overview of changes in the field of telecommunications development produced by satellite communications over the last 15 years focuses on applications of satellite systems for educational and health purposes in developing countries. Satellite communications development from 1974 to 1986 is identified as the first stage of telecommunications in developing countries, which was generally a trunking network restricted to large cities and beginning with lease or purchase of equipment from INTELSAT. Such projects in Algeria and Brazil are briefly described. A second stage of satellite communications development, which has rural service as an important part of the planning objectives, is also identified and the following topics are addressed in this context: 1) rural satellite communications systems in China and India; 2) new services and low-cost options available through INTELSAT; 3) major studies on the extension of telecommunications systems into rural and remote areas; 4) new digital compression techniques; and 5) cost/benefits of communications development. Guidelines for assessing the level of communications development are suggested. Attachments include lists of countries with INTELSAT leases and purchases; countries with dedicated communications satellite systems; and regional satellite systems. Also attached is a status report for Project SHARE which lists 14 projects together with their sponsors, the participating countries, the type of transmission, and content. Available from EDRS in microfiche for 82¢ or in paper copy for $1.94.

● Bates, A.W. *Satellites for Education and Training. IET Paper No. 258. Report on Visit to India, November 28-December 13, 1986.* 1986 6pp (ED 285 575)

This paper briefly reports on a visit to India to gather information on the INSAT-B satellite project for the purpose of identifying the main issues involved in using satellites for education and teaching purposes, with respect to potential Open University of Great Britain involvement. Organizations visited and individuals interviewed are identified, and a 33-item list of documentation on the Indian satellite experience collected during the visit or through desk research is provided. Available from EDRS in microfiche for 82¢ or in paper copy for $1.94.

● *Distance Learning Systems and Structures: Training Manual. Volume II. Report of a Sub-Regional Training Workshop (Colombo, Sri Lanka, July 5-18, 1984.)* 1987, 106pp. (ED 288 499)

Directed toward the training needs of distance education systems which are in a mixed stage of development, this three-part manual sets out training modules for an assortment of specialists currently contributing to distance learning systems. The first part discusses basic principles, including the aims of training, who should be trained, what they will be trained in, who will train them, how they will be trained, and where and for how long distance educators will be trained. Tasks and training needs as proposed in a report of an earlier APEID (Asia and the Pacific Programme of Educational Innovation for Development) regional seminar are

(**Minor** continued on page 10)

(**Minor** continued from page 9)

appended to this section. The second section describes the training modules and how they are used, and provides exemplary modules designed for the training of personnel involved in system administration, the production of correspondence materials, or the writing of scripts for educational radio or television. Orientation materials for distance learners and their families are also provided. The third section contains examples of training modules and materials that can be used to supplement the workshop programs, including bulletins, newsletters, journals, conferences, a mid-career training program for distance education personnel, and preservice and broadcast study programs. A glossary of 17 distance education terms concludes the manual. Available from EDRS in microfiche only for 82¢.

● *Evaluation of Distance Education Projects under APEID. Report of a Study Group Meeting (Nanjing, China, August 16-25, 1986).* 1987, 58pp. (ED 288 500)

This report documents the work of a study group that reviewed the distance education activities undertaken during the Third Cycle of the Asia and Pacific Programme of Educational Innovation for Development (APEID) as a basis for the further development and utilization of distance learning systems and structures. Reports on distance education development and the contributions of APEID during the Third Programme Cycle are also reviewed in terms of program areas, objectives, activities, and outcomes. A synthesis of the resulting summaries is presented in two parts—regional and subregional meetings, and national workshops. On the basis of these summaries, it was concluded that substantial progress has been achieved on the distance education projects that resulted from regional/subregional and national activities initiated by APEID, particularly with respect to: 1) distance education systems and structures; 2) training of distance educators; 3) course and study materials design and development; and 4) the use of distance education as an infrastructure for other developments. A discussion of future directions for distance education during the fourth programming cycle of APEID concludes the report. The agenda, a list of participants, and a list of working documents are appended. Available from EDRS in microfiche only for 82¢.

● Harper, Dennis O. *Computer Education for Developing Nations.* 1985, 51pp. (ED 290 465)

This report describes a project in Malaysia which provided three pilot courses using computer-assisted instruction (CAI) for both inservice and preservice teachers. Two courses for secondary teachers introduced the use of CAI in the secondary classroom and Logo for secondary mathematics, and primary teachers were shown how to introduce their students to CAI. The numerous factors that influenced the outcomes of this project are discussed, including problems with administration, transportation, "red tape," facilities, equipment repair, language of instruction, staff development, and time allotments. Other findings were that: 1) inexpensive microcomputers can be reliable; 2) the teachers who participated in the course come away with more optimistic attitudes toward computer use in education; 3) the majority of teachers learned to program and could produce CAI and Logo programs in the Malaysian language; and 4) the only background differences that significantly affected the final examination scores were English listening skills. A discussion of the possible implications of the study for educational planners in developing nations concluded the report, and a 68-item reference list is provided. Available from EDRS in microfiche only for 82¢, or in paper copy from the International Council for Computers in Education, University of Oregon, 1787 Agate Street, Eugene, Oregon 97403-1923, U.S.A. for $10.00 prepaid.

For information on how to order a majority of these documents, please see the first paragraph of this column. ■

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(**Briefly** *continued from page 4*)

developing countries. The surviving children in these countries often suffer from malnutrition, disease, a lack of clothing or shelter, and limited educational opportunities. The book goes on to present a variety of facts, statistics, and observations on the conditions of child and family health and nutrition in developing countries, and the kinds of measures that are needed to promote good health and growth for children everywhere.

What makes this book distinctive is the generous array of illustrations, charts, graphs, and drawings that accompany the authors' discussion, providing a graphic reinforcement of the information being presented. Through this combination of written and illustrative commentary the book effectively fulfills its stated objective of bringing up-to-date information on child health to people working in health and development. It would be extremely useful not only to those needing the written discussions but also for those seeking illustrative materials pertaining to information on child survival in developing countries.

The book is available from Macmillan Publishers Ltd., Houndsmills, Basingstoke, Hampshire RG21 2XS, U.K. or from TALC, P.O. Box 49, St. Albans, Hertfordshire AL1 4AX, U.K. The cost is US$3.25 in the U.K. and US$1.65 elsewhere.

A Selection of Resources for Health, Agriculture, and Training Materials.

1. **Teaching Aids at Low Cost (TALC)** provides low-cost appropriate teaching materials to health workers in developing countries. Publications are available on mother and child care, nutrition and child growth, disability and appropriate technology, health care services, health education and communication, and medicine. Accessories include medical slides from the Institute of Child Health of the University of London, a child weighing kit, child health charts, height-for-weight charts, and sugar and salt measures. Materials are available in English, Spanish, French, Arabic, Portuguese, and Chinese. For more information and a list of materials write to TALC, P.O. Box 49, St. Albans, Hertfordshire AL14 AX, United Kingdom.

2. The **Appropriate Health Resources and Technologies Action Group (AHRTAG)** has published the *AHRTAG Resource List: Free International Newsletters*, a list of 73 free newsletters that discuss topics and issues related to primary health care. The list would be a useful resource for library and information centers and for health workers involved in training, clinical, or community work. It is available free from AHRTAG, 85 Marylebone High Street, London W1M 3DE, U.K.

3. **World Neighbors** has recently sent out a new and updated *Training Materials Catalog*. **World Neighbors** produces teaching materials in the areas of community development, water and sanitation, health and nutrition, family planning, agriculture, and small animal raising. Materials include a wide variety of filmstrips, books and booklets, flipcharts, photo series, newsletters, and projection equipment. The latter includes lightweight, inexpensive projectors, and electric and solar battery chargers. For a free catalog write to World Neighbors, 5116 North Portland Ave., Oklahoma City, Oklahoma 73112, USA.

4. In May of this year the **Information Centre for Low External Input Agriculture (ILEIA)** published a bibliography of abstracts, periodicals, organizations, and books related to sustainable agriculture. It includes abstracts of 45 major books, a list of 32 periodicals, 34 information centers, 5 international networks, 15 international institutions and a bibliography of an additional 254 publications. Individual citations are listed alphabetically, indexed by subject, and include an address for further information. This useful reference is available by subscribing to the *ILEIA Newsletter* for DFL 40. (US$20/year). Free subscriptions are available in developing countries. Write to ILEIA, P.O. Box 64, 3830 AB Leusden, The Netherlands. ■

Pat Simons is the Information Specialist in the Clearinghouse.

1988 DCR Reader Survey Results

by Sharon Smith Elsayed

Only five months after the 1988 *DCR* Reader Survey was distributed to its 6,125 subscribers, the Clearinghouse has received nearly ten percent of them back. We are very pleased with this response rate knowing that nearly 3/4 of our readers are in developing countries and mail delivery is usually quite slow. Approximately 32 percent of the responses were from subscribers conducting most of their work in the Asia/Pacific region, followed by 29 percent whose work is primarily in African countries. Those working primarily in South and Central America, the Caribbean, and Mexico comprised another 22 percent of respondents, with the remaining 17 percent working in the Middle East, Europe, the United States, and Canada. The following is a summary of the results obtained from the survey, reflecting the views and insights of this widely diverse and dispersed readership.

The extensive comments and actual numbers from the survey demonstrate clearly that the *DCR* serves as a valuable resource in development communication technologies, reaching beyond subscribers' desks right into the field. Nearly 54 percent of respondents have used one or more specific ideas presented in the newsletter, with 55 percent reporting that they read the *DCR* thoroughly. Pretesting of materials, radio and video technologies, computers in development, comics and photonovels, social marketing, visuals in teaching, and survey/evaluation techniques were among the most frequently used ideas. Readers indicated a desire to see more information about communication applications in environmental education, agricultural technology, AIDS, and other health concerns.

Results of the survey indicate that the 6,125 subscribers to DCR reflect only a small percentage of the actual number of readers. Based on estimates of how many people read a single issue of the newsletter, other than the subscriber, **there are an average of seven readers for each subscriber**, bringing the actual readership to approximately 42,875.

Survey Results

(Note: Respondents were instructed to check the number of boxes indicated for each question.)

- Most of my communication work is in the field of: (one box only)

Population	(5%)	Nutrition	(5%)
Agriculture	(21%)	Telecommunications	(4%)
Health	(22%)	Other	(14%)
Education	(29%)		

- The professional position which best describes me is: (one box only)

Project Staff	(15%)	Information Manager	(14%)
Consultant	(17%)	U.S.A.I.D. Staff	(2%)
Academic	(26%)	Government Official	(12%)
Other	(14%)		

- Most of my work is conducted in: (check as many as appropriate)

Africa	(29%)	Middle East	(4%)
Asia/Pacific	(32%)	Caribbean/S.America	(14%)
Mexico/Cent America	(8%)	Europe	(4%)
USA/Canada	(5%)		

- I read the *DCR*: (one box only)

Thoroughly	(55%)
Selectively	(37%)
Add to a collection for others	(8%)

- I find the English in the *DCR*:

Quite easy to understand	(92%)
Somewhat difficult to understand	(7%)
Very difficult to understand	(1%)

- In addition to myself, the following numbers of people read my *DCR*: (one box only)

none	(13%)
1 - 5	(65%)
6 - 10	(9%)
11 - 20	(5%)
Over 20	(8%)

- I have used the *DCR* in the following ways: (check as many as appropriate)

Project design & evaluation	(13%)
Teaching & research	(28%)
Prepare for professional meetings/conferences	(22%)
Ordering publications/requesting information	(26%)
Reprinting articles	(8%)
Other	(3%)

- I have used a specific idea from the *DCR* or suggested an idea to someone who used it: (check one box)

Yes	(54%)	No	(46%)

- I would like to see the *DCR*: (check as many as appropriate)

Continue to provide articles on specific communication strategies	(25%)
Continue to cover technology applications	(20%)
Alert readers to new communication issues	(22%)
Be expanded	(8%)
Have more pictures/graphics	(9%)

Comments

In contrast to the 1984 reader survey, use of the *DCR* for education and research has increased significantly. Particularly in Africa and the Asia/Pacific region, academicians in agriculture, health, and education appear to be using *DCR* in their teaching and research. The *DCR* is also being used by a significant number of project staff, consultants, as well as academicians to prepare for professional meetings and conferences, and frequently to order publications or to request further information.

Perhaps the most revealing and rewarding aspect of the survey responses were the answers to open-ended questions and the extensive comments, ideas, and suggestions received from more than 80 percent of the respondents. Some suggestions contradicted the numerical evidence of the survey. For example, some suggested simplifying the language used in the *DCR*, whereas 92 percent of respondents find the English quite easy to read. However, requests to provide translations to Spanish, French, and Urdu were received from quite a few readers. As testament to the usefulness of the *DCR*, one reader commented that he uses many ideas from the publication and "hoped that we didn't mind him adapting the survey for his own use, with full recognition to the *DCR*, of course."

The apparent commitment of a diverse network of professionals was reflected in the wide variety of applications for ideas and technologies presented in the *DCR*. The Clearinghouse staff in Washington would like to thank all respondents for their cooperation and for sharing their concerns, suggestions, and gratitude with us.

A complete report of the findings from the survey may be obtained by writing to: Sharon Smith Elsayed, 8648 Ridge Road, Ellicott City, Maryland 21043, U.S.A. ■

Sharon Smith Elsayed assisted the Clearinghouse in designing the DCR Reader Survey. She is currently working at Biospherics, Inc. in Greenbelt, Maryland, and was a health communication planner with the PRITECH Project, managed by Management Sciences for Health.

(**Balit** *continued from page 7*)

structural design, and the like.

- It is part craft because it employs a wide variety of aids and equipment such as cameras, projectors, typesetters, computers, and broadcasting and telecommunitions paraphernalia, for preparing, projecting, and disseminating messages."

After analyzing the case studies and experience to date, the participants in the meeting thought the following were fundamental common factors in determining success:

1. As in all development activities, communication, if it is to be successful, must be based on the perspectives of the rural people.
2. Communication for development must be incorporated in the planning and programming stage of projects. It helps to determine the areas of common need and interest among governments, rural people, development workers, and donor agencies. This leads to projects that are viable and sustainable because of the converging interest of all sectors involved.
3. The duration of components in development projects, and of communication projects themselves, must be sufficiently long to demonstrate their value and to create an institutional base. A duration of four to five years should be considered a normal minimum for most projects.
4. For a given development activity, there will be a critical mass of communication staff, resources, and equipment below which little or no impact can be expected. Hence, the dimension of the communication input must be carefully tailored to the needs of the development action. It must not be a token input, as it so often is, irrespective of the scope and importance of the communication task to be performed.
5. Particularly among the poorest of the poor, a holistic approach is essential, covering the multifaceted aspects of life in rural areas, and therefore dealing not only with agricultural production but covering also such matters as health, habitat, and nutrition.

The Right Environment

It also emerged that there are certain essentials at the national level for the successful use of communication for development. They are as follows:

1. A strategic use of communication for development requires a policy decision in its favor, followed by sustained government support.
2. A decision by government in favor of broad-based communication support for rural development, using all of the media infrastructures available to it in an orchestrated fashion, will usually give better results than concentration on one medium, such as radio broadcasting for example.
3. The issue of national staff is critical, and there are three criteria for determining the personnel requirements for carrying out communication for development activities. These are quantity of staff, quality of staff, and the permanency of their assignments to the task.

Even when all the above factors have been taken into account, the experts believed that the common denominator that remains in successful development communication endeavors is "clear strategy and rigorous management."

The Consultation made a number of recommendations to FAO and its Member Governments to improve the planning and implementation of DSC activities. These will serve as guidelines for re-orienting the work of the DSC Branch, and its assistance to Member Governments.

To governments, the Consultation recommended that they recognize more fully that development is largely based on voluntary change by people and that communication can lead to the proper situation analysis, research, and participative testing necessary to ensure that activities be people oriented, responding to real needs. Governments were requested to consider establishing functional DSC units for rural development and, in the light of the crucial role played by communication in social and economic transformation of rural societies, the Consultation recommended that governments consider allotting suitable budgets for development communication.

Recommendations to FAO

The recommendations to FAO included the need to provide more orientation and briefing on communication for development to field programming staff and missions, to ensure that it is incorporated into the programming cycle from the inception of projects and throughout implementation. The DSC Branch should pay more attention to the planning and development of integrated rural communication systems and strategies, as opposed to the individual media approaches applied in the past. The need for training in communication of national staff at all levels was underlined, and the meeting recommended that the DSC Branch re-orient its activities to strengthen its training functions. National training institutions should be approached to build up their curricula in the area of development communication planning and management. In the field of research and evaluation, the Branch should continue to document successful and unsuccessful experiences, especially of an innovative nature, and make the results available to governments to assist with future planning and management of DSC activities.

Apart from serving as a basis for re-thinking FAO's directions in development support communication, the conclusions of the Expert Consultation have already aroused considerable interest on the part of governments, national institutions and international organizations concerned with rural communications. The findings of the Rome meeting are thus contributing to a better definition of the role of communication in rural development as well as providing guidelines to improve communication policies and programs. ■

Silvia Balit is Chief of Development Support Communication Branch, Information Division, at the FAO in Rome, Italy.

Project Access for Surplus Satellite Space

Introducing the benefits of satellite technology to residents of rural and remote parts of developing countries is the goal of Project Access, sponsored by the International Telecommunications Satellite Organization (Intelsat).

Access succeeds Project Share, which provided free satellite surplus space for 40 health- and education-related projects affecting 65 nations, Intelsat has announced that it will limit the Access program to about 10 projects annually, with strong emphasis on the ability to convert each program to sustained commercial service.

Intelsat recommends the following steps in planning a Project Access program:

- identify a target group that can benefit from Project Access;
- identify the type and content of the information to be transferred under the program and the communication media needed to transfer the information (voice, printed data); and estimate the starting time, ending time, frequency, and duration of the transmissions. (The applicant may contact Intelsat for a preliminary evaluation of its proposal.)
- send a signed application form to Intelsat headquarters.

Intelsat will examine each proposal and either approve it, conditionally approve it subject to revisions, or disapprove it. Once an application is approved, the applicant, signatories, and Intelsat will finalize the schedule for the project.

For more information or for an application, either contact your country's Director of Telecommunications or write to:

Project Access, Director of Service Assistance and Development, Intelsat,
3400 International Boulevard N.W.,
Washington, D.C. 20008, U.S.A.

A Design Studio for an Agricultural Project

A full-length version of this article appeared in the March 1986 issue of Media in Education and Development. The Clearinghouse would like to thank editor George Grimmett for permitting DCR to reprint a condensed version.

by Cliff Morris

Cliff Morris of the University of Reading's Department of Typography and Graphic Communications was invited to visit the Kano State Agricultural Development Project in Nigeria to help organize a design studio and to train staff. This article describes his experience and offers guidance to those who find themselves in a similar situation.

The Kano State Agricultural Development Authority (KNARDA), is one of a number of Agricultural Development and Research centers located throughout Nigeria. KNARDA has a large program devoted to helping farmers produce more, better, and varied crops. A Media Centre consisting of a video and photographic unit and a printing department was established to support this program. The video unit is responsible for producing instructional videos and transparencies. It also maintains video equipment that has been installed in vehicles used for teaching in remote areas of Kano.

The printing unit designs and produces instructional and information materials such as handbooks, newsletters, posters, etc. for the entire Agricultural Development Authority. Experts prepare the teaching materials and send them to the printing unit for production. Posters usually are created in the design studio and, if accepted by the Chief Training Officer, go forward to production either within the unit or, if the format is too large for the machines, to a local printer.

My task was to train the design studio staff and to establish cooperative working relationships with other parts of the Media Centre.

Staffing

It is difficult to lay down rigid guidelines on the number of designers needed in such an organization. Obviously, this depends on the amount of projected work. It is possible, however, to define the skills that a designer will need to work in such a center.

The designer must be capable of handling a wide variety of typographic formats. This includes the ability to place words and lines of type on a page in an aesthetic manner while at the same time drawing attention to important points by using combinations of the various graphic techniques. He must also know how to produce forms, leaflets, and miscellaneous graphic documents that are easy to understand and to use.

Manuscripts often require illustrations, and writers usually cannot prepare their own. A designer should be able to understand writers' needs and know how to prepare illustrations that are acceptable to them, as well as easy to understand and are not too difficult to produce.

The designer may also be called upon to prepare interior and exterior signs (such as lettering on vehicles and boards for experimental farming plots) and to create lettering and illustrations for videos and transparencies.

It seems quite clear that a paragon is called for, not just a designer, to fill all of these roles! In reality, at least two people are needed – each with different skills that will complement the other. One should have had typographic training. The other should not only be skilled at illustrating but also be able to assist the typographer when necessary.

It is difficult to find people with typographic training in most developing countries. College-level art and design courses seem to focus their training on art, textile design, etc., but offer nothing on the design of printed materials.

There are other ways for designers to get these skills: a specialist could be brought in to do on-site training or a designer could be released for at least three months (preferably nine) for off-site training. Also, one of the senior management staff could attend a course in typographic design and then pass on this training to technicians in the graphic design unit.

Working Environment

A graphic design unit, although a part of a printing department, does not necessarily have to be housed within it. Essentially, what is needed is a self-contained, well-lit room with sufficient space for equipment and storage. Running water should be nearby, not only for personal cleanliness, but also to clean technical pens and other design equipment as well. Sufficient power must be available for the electrical equipment that will be used in this department, including extra illumination.

A small darkroom will be needed. Along with film development, this room will be needed to hold a process camera used to reduce and enlarge artwork and other copy for paste-up purposes. The darkroom should be easily accessible to the design staff, thus preferably located adjacent to the main studio. If possible, the use of this darkroom should be limited to the design staff, but realistically, it may also be needed to process and print photographic work for other departments. In this case, it is essential that these two functions be isolated so both activities can proceed simultaneously. This calls for a room within a room, each having light-trap entrances, so staff can move from studio to darkroom and from one darkroom to another without allowing light to enter and ruin light-sensitive materials.

Equipment and Materials

Each designer should have a large drafting desk with adequate storage space at his or her main work station. A light table capable of parallel motion and equipped with a vertical rule will be needed for paste-up and film stripping, and possibly for checking print proofs. If there are more than two designers in this unit, more than one light table may be needed.

Space will be needed to appropriately store camera supplies. In addition, the studio will need space for items such as a series of architect's drawers to store large sheets of paper, for finished work, and for work in progress.

Smaller items of equipment such as technical pens, pencils, set squares, lettering stencils, scalpels, etc. will be needed by each designer. If properly used and cared for, these should last for some time.

Expendable materials such as various weights of paper and cardstock and adhesives for paste-up, transfer lettering, and tracing paper will be used almost daily. Most of these items are difficult to find locally, so must be ordered either from large cities or from outside the country. It is essential, therefore, that an adequate re-ordering system be established immediately.

Transfer lettering poses a more difficult problem. There is such a variety of typefaces and sizes available that errors in ordering can easily occur. It is advisable to study the catalogue and order a large supply of a limited number of typefaces in several sizes at one time so that adequate supplies are always on hand.

Organization and Management

It is important that the working area be carefully planned. Maximum use must be made of floor space and natural light. Desks should be positioned as near to windows as possible, but light tables can be placed in the darker areas since they have their own light source. A flat surface will be needed beside the light tables to hold tools and materials for paste-up. These tops should be covered with special cutting mats to prevent damaging other surfaces and to prolong the life of scalpel blades.

The daily management of the design studio presents problems to the small unit. Work requests from other departments will have to be sorted out by a design unit administrator.

(**Morris** *continued on page 14*)

(**Morris** continued from page 13)

One way to solve conflicting demands on designers' time is to set aside certain time blocks to work with specified departments.

Paperwork will consist of having to keep job sheets, progress sheets, specification forms, etc. all of which will have to be developed for the special needs of a particular design studio.

The administrator is responsible for ordering supplies and acting as the liaison between other units in the center. Talking with clients, typesetters, and printers is also an administrator's job.

It should be made clear to other departments in the center that all printing jobs, including reprint work, must go to the design studio first. The design staff are in this way responsible for designing the job or passing it through to the printer. This prevents problems later on when copy must be fit into a selected format.

Cooperation Between Units

Most newly-developed media centers have the technology to produce instructional videos. Such a video can be considerably enhanced by careful attention to the graphics used in its titles and captions or descriptive passages. Designing graphics for still shots on a video is not difficult, but any movement of the graphic on the video calls for special handling and equipment if the end product is to look professional. Good communication is required between a video crew and the design staff to achieve a satisfactory final product.

Close cooperation will also be necessary between designers and photographers. The designer may suggest the selection of materials and models, but the photographer is responsible for technical decisions based upon discussions with the designer.

Liaison will also be needed with instructors who request special visual aids or slides for their lectures. For example, a designer accompanied by a photographer may visit a farm or research institute to prepare illustrations or take pictures of crops, animals, or farmsteads for instructional purposes.

And finally, in a well-managed design studio each person knows what is required of him or her; regular meetings are held to discuss new jobs and to review the progress of ongoing assignments. Jobs are more likely to be completed on time and satisfactorily with regular monitoring. Furthermore, the positive feedback from well-done work will maintain a high morale in the unit. ■

Correspondence can be addressed to Cliff Morris, Department of Typography and Graphic Communication, University of Reading, 2 Earley Gate, Whiteknights, Reading RG6 2AU, U.K.

(**Puppetry** *continued from page 15*)

- the audience correctly perceived the various "roles" the puppet characters exemplified.

Training Workshops

The production and creative staff of the NMPC Puppet Theater have been fully equipped to train interested community organizations who want to establish local-level puppet theater groups. The staff conducts workshops on puppet production including puppet design and execution, props production, direction, stage construction, and puppet manipulation. To improve their training techniques, four members of the theater group received further formal training in puppetry in Czechoslovakia in 1982.

The group also assists the Communication Foundation for Asia in conducting sessions on "Puppeteering as a Tool for Development" during periodic seminar/workshops.

Training activities are monitored and evaluated as a matter of standard practice by the National Media Production Center. These evaluations are conducted to assess the effectiveness of the training program in conveying the knowledge and skills necessary to mount a puppet production, as well as to evaluate the mechanics, methodology, course content, and trainers of the puppet training workshops. Evaluations show that many of the participants felt the training sessions had given them the type of production skills they needed to use puppetry for development messages.

Conclusion

The NMPC Puppet Theater experience has shown that puppet theater projects are effective in fostering community identity and in communicating development and social messages. One of its main strengths is its easy replicability – script development, production design, and staging can easily become a community undertaking. ■

This book is available from Asian Mass Communication Research and Information Centre (AMIC), 39 Newton Road, Singapore 1130, Republic of Singapore, for US$10 (in Asia), US$8 (elsewhere).

(**French** *continued from page 16*)

e. *Cinquième*: elle définit le critère de succès. Si, dans le cas d'engrais, nous voulons que leur utilization augmente de 5 pour cent, le critère est 5 pour cent. Ceci nous explique *dans quelle mesure* l'auditeur doit faire quelque chose pour que notre objectif soit atteint.

Application

Comment utiliser des objectifs en radio éducative:

Les animateurs de radio éducative doivent utiliser des objectifs comme première étape de la planification des émissions. Les objectifs contiennent les éléments-clés à mettre en valeur et à enseigner, et représentent les connaissances à présenter clairement et sur lesquelles insister dans le cadre du programme.

Au stade d'élaboration de l'émission, les objectifs sont utiles, car ils fournissent l'ordre de base. Le contenu s'enchaînera selon les objectifs si ceux-ci sont ordonnés correctement, et s'ils passent des concepts simples aux plus compliqués.

Les objectifs peuvent aussi être donnés à l'etudiant, soit dans l'émission, soit dans un dossier accompagnant l'émission. Leur valeur ici est comparable à la valeur des notes destinées à l'enseignant. Ils mettent en lumiére les points importants à étudier. Les objectifs de chaque leçon peuvent être définis a l'intention de l'enseignant (et en fin de compte a l'intention de l'étudiant) dans les notes de l'enseignant. En les lui donnant, on lui fournit des informations sur les points-clés de la leçon, et ainsi vous, producteur, permettez en fait – a l'enseignant de faire partie de *votre* équipe. Votre émission sera mieux comprise et mieux utilisée si l'enseignant est integré à votre équipe. Il en devient membre en soulignant les points-clés (les objectifs) au tableau et/ou en développant les sujets en question aprés audition de l'émission.

A ne pas oublier:

- Une production efficace commence par la planification.
- La question-clé à poser au moment de la planification est:
  "Où est-ce que je veux aller?"
- Un bon objectif est formulé clairement et spécifiquement.
- Les objectifs s'ordonnent étape par étape, du plus facile au plus difficile.
- Les buts sont moins spécifiques, plus généraux que les objectifs
- Des objectifs bien formulés contiennent cinq composantes. Elles définissent:
  1. Qui
  2. Fait quoi
  3. A quoi
  4. Dans quelles conditions
  5. Avec quel succès
- Les Objectifs peuvent être utilisés en radio pour:
  1. La production d'émissions
  2. La définition des points sur lesquels l'enseignment insistera
  3. La facilité d'apprentissage de l'étudiant et
  4. La facilité d'enseignement de l'enseignant. ■

Messages in Hand: Puppetry for Development

This article has been adapted from Chapter Three of Philippine Folk Media in Development Communication. *The Clearinghouse would like to thank the Asian Mass Communication Research and Information Centre and Dr. Victor Valbuena, the author, for kindly granting us permission to reprint portions of this chapter.*

Among the many forms of folk media, puppetry has caught the attention of communication and development planners. The great potential of puppetry as a channel for socialization and education communication was recognized by many Asian development and communication planners attending the Literacy, Population, and Family Planning Education Workshop held in New Delhi in 1970. Since then, a number of Asian countries have tapped the liveliness of this medium for their various education and communication programs.

The Philippines has used its own form of puppets – shadow puppets, called *carillo*, since the mid-eighteenth century. Since the mid-1970s, there has been a renaissance of puppetry in the Philippines where many groups emerged to actively use this format for entertainment, education, dissemination of development information, and even for commercial purposes. The repertoire of these puppet theater groups today ranges from legends and folk tales, Biblical dramas with moral lessons, comic situations, and dramas on development-oriented themes including nutrition, dental health, family planning, environmental sanitation, and land reform.

Evolution of A Puppet Theater

In February 1975, the National Media Production Center (NMPC), established its Nutrition Communication Office (NCO) to produce and disseminate information and education materials for the Philippine Nutrition Program. The use of puppet theater for nutrition education purposes was developed out of a desire on the part of NMPC to experiment with the use of popular, folk, and low-cost media for development communication. In a "Concept Paper on Puppet Theater," the NCO explained the objectives of the theater project:

- encourage children's participation in government programs to improve nutrition;
- demonstrate by way of an entertainment medium the values of proper nutrition;
- encourage children to accept the positive values, beliefs, and practices of proper nutrition;

While the primary goal of the puppet theater project was to create awareness of proper nutrition among children, the NCO also viewed the project as a vehicle for increasing adult popular participation in development processes.

To meet these objectives, the NCO

- tested the viability of puppet theater for nutrition education by staging initial presentations in schools, day care centers, community halls, etc.;
- conducted training workshops on puppet theater for interested community organizations and subsequently established a community-based Nutrition Puppet Theater Group on the municipal level;
- presented and performed puppet shows in the respective communities by these organizations; and
- continued to monitor and evaluate the project with assistance from the partner community organizations.

In July 1978, a puppetry workshop was held to train and equip the would-be puppeteers. The script developed during the workshop contained messages on proper nutrition geared to a young audience. The final product was the puppet show *Kainan Na (Time to Eat)*, a performance which included entertainment, drama, and a quiz.

For entertainment, a song and dance are performed by puppets that have been modeled after popular Filipino entertainers.

Drama is achieved through the development of a story about *Kapitan Munggo* (Captain Mung Beans), an ordinary boy who assumes the personality of a fantastic magical hero and who attributes his strength to eating vegetables and drinking milk.

A concluding quiz is hosted by two puppets who ask questions about nutrition. The audience contestants who answer the questions correctly receive prizes. Since its first performance before a girl's school in metro Manila, the puppet theater group has been constantly kept busy by requests from other schools, government agencies, and even private groups and individuals asking them to stage puppet dramas or variety shows.

Since 1978, the NMPC Puppet Theater has introduced into their shows themes on population, agrarian reform, developing childrens' values, the role of rural women in development, and proper health habits. The group has developed and staged several hundred shows throughout the Philippines, in other Asian countries, and in Europe. The NMPC Puppet Theater has, in fact, become a separate theater unit within the National Media Production Center and in 1984, was rechristened "The Black Theater of Manila."

"What accounts for the Theater Group's popularity," Ms. Lolita Aquino, head of the Puppet Theater Group, explains, "is that more and more agencies are trying to find new ways of making education more interesting and appealing; and puppet shows are an effective medium for making this possible."

NMPC Puppet Theater Repertoire

The NMPC Puppet Theater uses a range of topics and approaches. Some of its shows were initiated and developed by the theater group on its own; others were co-production ventures. Some are original works; others are adaptations. The group's repertoire includes

Kapitan Munggo Series: This series was an outgrowth of *Kapitan Munggo*, the magical hero of NMPC's first production mentioned above. The series acts out the different adventures of *Kapitan Munggo* as he fights off the enemies of proper nutrition like *Halimaw na Kendi* (Sugar Candy Monster).

Smile Ato Series: A co-production between a dental health foundation, a school of public health, and a toothpaste manufacturer, this series depicts the troubles of a people whose supply of fluoride and toothbrushes were stolen by a ruthless old witch and her wards. The people are saved by *Smile Ato* (Smiling Boy), the guardian of proper dental health.

Kids on the Block – Filipino Version: This is an adapted play that recreates conversations about disability between disabled and non-disabled puppets. A local civic organization and the National Commission Concerning Disabled Persons co-produced this play.

Integration with the Mass Media

The live puppet stage has not been the only venue for performances of the NMPC Puppet Theater. In 1980, the Communication Foundation of Asia requested the theater to produce 21 half-hour television episodes containing educational and social development themes for children. Three years later, two of the theater's puppet characters were co-hosts on a weekly television variety show. In 1984, the NMPC Puppet Theater developed, co-produced, and directed another television series on Filipino values that was interwoven into a fantasy tour of the country.

Evaluating Productions

Regular feedback gathered from theater audiences indicates that the health messages were being accurately recalled. For instance, a 1978 post-test performed by the NMPC Research Office of school children who had seen the *Kapitan Munggo* performance showed that:

- puppetry had been effective in projecting nutrition messages to its target audience;
- forty-two out of the forty-three children interviewed understood the messages about eating the right kind of food;
- thirty-six out of forty-three respondents approved of the form of message delivery; and

(**Puppetry** *continued on page 14*)

L'Utilisation d'Objectifs en Radio Educative

Nous avons choisi pour nos lecteurs un chapitre d'une publication qui mérite d'être retenue. L'édition originale publiée par Asian-Pacific Institute for Broadcasting Development sous le titre de "Educational Broadcasting: Radio" a été traduite et publiée en français sous le titre de: "Communiquer grâce à la radio: Manuel" par l'Organisation des Nations Unies pour l'alimentation et l'agriculture.

La publication dont a été tiré le présent chapitre, "Communiquer grâce a la radio: Manuel" peut être obtenue auprès de L'ONUAG, Via delle Terme di Caracalla, 00100 Rome, Italie.

Le producteur d'émissions éducatives n'est pas isolé quand il travaille, au contraire c'est en tant que membre de l'équipe de radio éducative qu'il les produit. Il planifie des émissions qui répondront aux critères définis par le gouvernement, par le ministère ou par l'organisme de radiodiffusion. Si on crée une émission éducative dans le vide, sans qu'existe le lien voulu avec un texte existant, ou un projet, il y a peu de chances qu'elle soit significative ou utilisée à bon escient. Grâce à une bonne planification, on produira de bonnes émissions et le degré d'utilisation sera élevé.

En accord avec des spécialistes de l'éducation, le producteur doit décider des changements en matière de connaissances, d'attitude ou de performance que le(s) émission(s) contribuera(ont) à induire dans le public.

Developpement

En jargon éducatif, il existe un nom pour ce que nous voulons que les gens fassent, ou apprennent: nous l'appelons *objectif*.

> Un objectif définit clairement et simplement ce que nous espérons réaliser *ou* le point où nous espérons arriver à la fin d'une activité.

Nous pouvons avoir des objectifs éducatifs, des objectifs de développement national, des objectifs de gestion, tout comme des objectifs de radio. Cela dépend entièrement de ce sur quoi est centrée l'activité à entreprendre.

Pour la plupart des activités, l'étape critique est celle de l'identification du(des) objectif(s) réel(s). En tant que producteurs de radio éducative, il peut arriver que les objectifs d'émissions nous soient donnés par des spécialistes en la matière, des créateurs de programmes scolaires, la direction de la radio ou l'équipe de production. Dans tous les cas, il est essentiel d'examiner ces objectifs et de déterminer s'ils sont réalistes par rapport au moyen de communication, s'ils sont adaptés à la situation et s'ils sont réalisables dans le cadre de l'émission, ou de la série, à produire.

Un problème commun aux objectifs est qu'ils sont souvent exprimés en termes trop généraux et pompeux, ce qui rend leur réalisation impossible en un seul projet ou une seule tâche. Un second problème commun est que souvent ils sont trop simples pour traiter véritablement d'une question dans sa totalité.

Buts et Objectifs: Quelle est la Différence?

En général, un but n'est pas exactement interchangeable avec un objectif. Il peut falloir un certain nombre d'objectifs pour atteindre un but, comme dans l'exemple suivant. Autrement dit, les buts sont plus généraux que les objectifs.

Exemple:

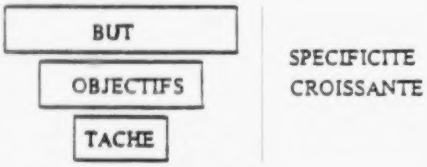
But: L'étudiant apprendra des concepts d'éducation en matière de population.

Objectif 1: L'étudiant sera capable d'établir un graphique de la croissance et de la distribution de la population.

Objectif 2: L'étudiant sera capable de discuter des causes et des conséquences de la croissance rapide de la population.

Objectif 3: L'étudiant pourra établir les rapports entre dimension de la famille et: santé de la mère et de l'enfant, possibilites d'éducation pour les membres de la famille, productivité agricole.

Dans les exemples ci-dessus, nous sommes passés d'un but général à des objectifs plus spécifiques. A partir de là, nous pouvons continuer à décomposer les objectifs en tâches encore plus précises. Quand nous passons des buts aux objectifs puis aux tâches, nous devenons plus spécifiques, en définissant plus clairement ce que doit être fait.



Les objectifs doivent indiquer spécifiquement ce qu'il faut enseigner. Il ne suffit pas de dire simplement que "l'étudiant apprendra des concepts d'éducation en matière de population." C'est une formulation trop générale. Quand saurons-nous que "les concepts" ont été étudiés? Qu'est-ce qu'un concept?

Soyez specifique. Dans l'exemple ci-dessus, l'enseignant ou le producteur doit analyser la formulation afin de définir quels points spécifiques de l'éducation en matière de population l'étudiant doit étudier, en attendant de la connaître à fond. En organisant les objectifs, vous *organisez l'apprentissage en étapes et en stades*. Cette organisation tient compte de la progression logique de l'étudiant suivie (on peut l'espérer) de sa compréhension logique, grâce auxquelles l'apprentissage progresse facilement du simple au complexe et d'un point à un autre.

Comment Rédiger les Objectifs

Un bon objectif doit définir cinq caractéristiques ou composantes importantes. Il s'agit de:

a. Qui (Le Sujet)
b. Fait quoi (L'Action)
c. A quoi (Le Contenu de l'Action)
d. Dans quelles conditions (La Condition)
e. Avec quel succès (Le Critère)

Qu'est-ce que cela signifie?

a. *Première composante*: elle définit le public visé. Ceci signifie que vous devez vous concentrer sur votre auditeur, et non pas sur vous-même ou sur de vagues buts concernant l'émission. Vous faites des émissions de radio dans l'intérêt des auditeurs, pour les aider à évoluer. Il peut s'agir d'une évolution du comportement ou bien d'une évolution du niveau des connaissances.

b. *Deuxième*: elle définit un *comportement observable explicite*. Pour ce faire, vous devez définir une action concrète, observable, que vous désirez stimuler, comme par exemple l'utilisation des engrais ou la participation à une reunion. Quand vous énoncez ces objectifs, choisissez soigneusement vos verbes. Servez-vous de mots tels que:

utiliser	dresser la liste
écrire	discuter
suivre	construire

Evitez les *termes vagues* ou les actions qui peuvent être difficiles à évaluer, tels que:

connaître	vouloir
comprendre	apprécier

c. *Troisième*: elle définit le contenu de l'action voulue. Ceci signifie qu'elle définit ce qui doit être fait. Si vous voulez augmenter la participation à une réunion, ne manquez pas de dire "à une réunion." Formulez l'objectif de façon à ce qu'une autre personne le comprenne aussi bien que vous.

d. *Quatrième*: elle définit les conditions. Ceci signifie définir les circonstances dans lesquelles quelque chose se produit: où et quand? Par exemple, augmenter la participation à la réunion mensuelle des adeptes du planning familial. Dans ce cas, ce qui est souligné dans l'énoncé de l'objectif définit les conditions ou la situation. Cela indique le lieu.

(**French** *continued on page 14*)

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Trends in Distance Learning: A New Wave

by Joao Oliveira

In the last ten years, distance learning has boomed all over the world. Large open universities enrolling over two million students have been created in Asia, including the Chinese Radio and Television University, the Sukhothai Thammathirat Open University (STOU) in Thailand, the Universitas Terbuka (UT) in Indonesia, and a half-dozen open universities in India. Korea continues to rely on correspondence schools to meet its goal of universalizing secondary education—as Japan did until very recently. In the Middle East, distance learning institutions have also expanded. The ANADOLU Open University in Turkey, with over 150,000 students, has already trained and graduated 100,000 teachers, and its programs now reach more than two million Turkish nationals living in Germany. In Africa, smaller institutions and distance learning programs have taken hold. Following the tradition of Colombian radiophonic schools of the late forties, Latin America displays an exciting array of distance learning institutions. Some programs are like UNED (Universidad Estatal a Distancia) in Costa Rica and APEC (Centro de Accion Pro Educacion y Cultura a Distancia) in the Dominican Republic are very small. Other programs like Mexico's twenty-year-old Telesecundaria or Brazil's Telecurso reach several million secondary students each day.

Not Only In Developing Countries

The new distance learning wave is not exclusive to developing countries. Great Britain's Open University is fully consolidated and mature. The three-year-old Open College, also in Britain, enrolls more than 40,000 students in several technical areas. Japan has just opened its second open university. Traditional distance learning programs, such as the University of California's Berkeley Extension Program in the U.S., continue to expand amid growing competition in new markets. The National Technological University, a consortium of respected American engineering schools, offers master's degree programs in technology-related fields and represents a major endorsement of distance education by U.S. businesses and its academic community. Distance learning is no longer limited by national boundaries. OLI-DISTED, a consortium of Canadian and Malaysian institutions, illustrates this new trend. Multinational projects, such as DELTA and PACE in Europe, have been launched with strong support from European industries and educational institutions. And programs organized by the Commonwealth of Learning and the *Centre International Francophone de Formation a Distance* (CIFAD) are heavily involved in the development of global distance learning networks.

Some Reasons

Why is distance learning becoming so popular? A combination of reasons underlie the new interest in and growth of distance education.

Economic. Distance education offers a good solution to one of education's most pressing problems: scarcity of resources. At current levels of investment in education, very few countries in the developing world will be able to maintain their present levels of enrollments, much less

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To our Readers

The 63rd issue of *Development Communication Report* is the first to be published by the Institute for International Research (IIR), the new manager of the Clearinghouse on Development Communication. We would like to express our appreciation for the pioneering work carried out by the Academy for Educational Development over the last seventeen years. AED staff have created an institution noted for its spirit of service and its responsiveness to the needs of development communicators worldwide. IIR will seek to maintain this tradition, and we will measure our success by how much and how often our readers interact with us and how well we provide you with materials and services that will make a difference to your efforts in the field.

This issue of the *Development Communication Report* takes a look at the evolution of distance education as a development resource. An overview section, *Trends,* introduces the reader to new developments in distance learning. *Principles into Practice* examines specific problems in the application of distance learning methodology. The final section, *Yes but* ... reminds us of some of the challenges distance education continues to face before it becomes a widely accepted, equitable alternative to conventional education.

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DTCP Relocates

The UNDP's Development Training and Communication Planning Programme has moved to the Philippines.

The new address is DTCP/UNDP, 5th floor, Bonifacio Building University of Life Campus, Meralco Avenue, Pasig, Metro Manila, Philippines.

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improve access and quality. Since it is unlikely that demand for education will drop, and equally unlikely that education budgets will rise significantly, decision-makers need to identify educational alternatives that can still improve quality and extend educational opportunities.

Pedagogical. In both the developing and the developed world, the clientele looking for educational opportunities is becoming more diverse. Even at highly prestigious institutions such as Harvard University in the U.S., two-thirds of the enrolled students are now over age 25. Adult education is placing new demands on educational systems. Job-related training requires new institutional arrangements and delivery systems to cope with the diversity of demand. Distance education can offer flexible responses to different clients, different needs and different types of students. In this respect, distance education is a perfect example of technology fit.

Timing and Urgency. Technology gaps are more readily felt in some areas than in others. For example, even the poorest developing countries cannot run their central banks or airlines without access to national and international computer networks. The need for education has seldom taken on such urgency. If countries are to compete in international markets, updated education, training and information has to, at the very least, flow to countries' educational institutions and technological elites.

Technological Advances. The hard technologies supporting distance education programs are becoming more reliable and robust. Prices are going down. Mail and telecommunications services have made enormous progress. Many countries now have access to some form of modern communication infrastructure. Significant advances have been made in the areas of instructional design and student support systems through software design.

Managerial. In many developing countries, complex programs and projects are demanding more skills and abilities from their managers. Systems that manage complex operations—particularly microcomputer-based technologies—are now widely available. Experiences are being shared between developing countries, thus avoiding repetitions of major mistakes.

Socio-psychological. Institutions such as the Open University in Great Britain and the National Technological University in the U.S. have contributed a great deal to distance education's credibility. Industry and educational systems' heavy use of distance learning to provide training is an additional source of support. Mounting evidence supporting the cost-effectiveness and feasibility of implementing large-scale, quality distance learning programs is becoming harder and harder to deny. Moreover, given the increasing size of the educational deficit, distance learning is often an option that deserves serious consideration.

> *... most people would prefer a clearly inferior education in a brick schoolhouse than a possibly superior education provided by non-conventional means.*

New Realities, New Challenges

Distance education, however, still has a long way to go and faces some formidable challenges. Distance education must overcome the skepticism of traditional educators and the bad reputation it earned early in its history. The iconic value of face-to-face instruction delivered in a brick school house has never received sufficient attention from promoters of educational technology. In addition, the custodial and other non-instructional functions of schools, particularly in the early grades, virtually preclude any serious discussion of technology change. All other things being equal, most people would prefer a clearly inferior education in a brick schoolhouse than a possibly superior education provided by non-conventional means. This is especially true where there is no rigorous standardized evaluation of schooling, as is often the case in developing countries.

Educational technologies in general, and distance learning in particular, deserve much of the bad reputation they have earned in the past. Many distance learning interventions were simply bad ideas, ill-conceived projects, inadequately-funded programs, costly rediscoveries of the wheel, or projects conceived around a single medium or "great man". Distance

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education projects were commonly associated with second-best, poorer forms of education for the poorest, least bright students. The pace of instruction was seldom compatible with students' schedules. Truth in advertising was not always present: policies of open access were as damaging to distance education as they were to conventional universities. On the other hand, distance education programs were unfairly compared only to one or two of the best universities in a country, not with average institutions.

Critics of distance learning, and education technology in general, seldom compare pitfalls and limitations of conventional, face-to-face education. For example, the number of times the electricity or batteries fail in a radio project is seldom compared with the absenteeism rate of teachers, which can reach 60% in many developing countries. Finally, distance learning institutions that live without students on campus can also survive without full-time faculties when they rely on materials developed elsewhere. New organizational patterns disrupt traditional expectations about educational institutions and threaten safe job markets. It's no small wonder that distance learning attracts so many foes and so much criticism.

As with any other social innovation, the burden of proof continues to lie on distance education's proponents. To improve distance education's credibility, researchers need to address four major areas: Student Access, Instructional Design, Student Support Systems, and Evaluation and Accreditation Procedures.

Student Access. The idea of open access sends ambiguous messages to the market. Truth in advertising is a must in any successful educational program. Distance education is not easier than traditional education. Students must be clearly informed about their chances to succeed in a distance learning program, and be helped to succeed. The flexibility allowed by distance education should not only be used to increase enrollments, but also to meet student needs by offering alternative courses.

Instructional Design. Motivation is a key to learning; it is even more crucial for independent learning. The absence of the teacher and peers has to be compensated

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Open Universities: An Incomplete Mosaic of Achievement

by Dean Nielsen

The growth of distance higher education in Asia over the past decade and a half has been explosive. Patterned after the British Open University, the first open university of the region, the Allama Iqbal Open University (AIOU) of Pakistan, began admitting students in 1974. Since then, open universities have been established in India, Indonesia, Korea, Sri Lanka and Thailand. In addition, conventional universities in countries like Malaysia and China have expanded their off-campus programs and China has reopened its enormous Central Radio and Television University. The combined enrollments of these programs have now reached over 2.5 million, more than 25% of all the world's students enrolled in distance higher education. The ambitious goals and promises made by these new distance teaching institutions are similar to those made by prototype institutions in Great Britain, Europe, Canada and Australia. Among them are:

- increasing access to higher education, particularly among disadvantaged groups who, because of location or class, have been excluded in the past;
- delivering high quality courses for self-instruction through a mix of programmed materials and media;
- providing support services for students, even those in the remotest areas; and
- providing credentials that graduates can use successfully in the job market.

Until recently, there has been little firm evidence whether Asia's distance education institutions were fulfilling these goals and promises. Newly completed research studies, conducted with support from the International Development Research Centre (IDRC) of Canada, are now beginning to offer initial findings. The studies, conducted by the distance education universities in Malaysia, Indonesia, Pakistan, Thailand and China, cover a wide variety of topics, from student characteristics, to media mix, to occupational benefits. None of these topics were covered in all countries and no country covered all the topics. So, instead of a comprehensive assessment of distance education programs in Asia, what is available at this point is a mosaic of studies and findings that provide early insight into how well Asia's distance education institutions are fulfilling their goals and promises.

Increased Access, But For Whom?

The creation of 2.5 million new places for university students has meant a dramatic increase in access to higher education in Asia. The Central Radio and Television University in China enrolls more students than the country's other universities combined. In its first year of operation, the Indonesian Open University, Universitas Terbuka (UT), became the largest university in the land. Research reveals, however, that the clients of these universities are not the ones that originally expected; for example, although the off-campus program of the University Sains Malaysia (USM) is intended primarily for disadvantaged rural learners, in reality, nearly 50% of the program's current students are from Malaysia's three major cities. Universitas Terbuka was originally established to provide places for large numbers of secondary school graduates denied enrollment in conventional universities. But in fact it has attracted mostly older, employed, married males. The portrait of the open university student for much of the region has become that of persons pursuing a second chance for a university degree in the hope that it will help them find a better job.

A more recent development is the growth of a clientele who is not even degree-seeking. More time and effort is being spent developing specialized, short-term training courses that either lead to certification, or that are custom-made for specific institutions (banks, professional organizations), or professions (construction managers or local government officers). Clients requesting these courses have found open universities effective in designing and delivering courseware. The universities, on the other

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for by intrinsically motivating and carefully designed instructional materials. Instructional design techniques and the adaptation of existing materials and models can help to improve the quality of instruction.

Student Support Systems. Learning is, essentially, a social act. At least cognitive psychologists would concede that learning is heavily influenced by external, social factors. Peer-tutoring and collaborative learning are proven instructional techniques. Strengthening learning support systems that incorporate direct and mediated social interaction is a key to successful distance learning projects. Computer-based distance learning programs illustrate that students spend at least as much time interacting with fellow students over computer lines as they do studying. Interactivity, feedback, and socio-emotional support are at least as important to sustain motivation and performance as are other components of distance learning programs.

Evaluation and Accreditation Procedures. External evaluations of costs and effectiveness, peer-review committees, tracer studies of graduates and accreditation boards are essential instruments to establish and improve the reputation of innovative programs.

Breaking Frontiers

These are some of the new realities created by educational media and the imaginative efforts of competent, well-meaning educators. They may be welcomed with reserve and skepticism. Suspicion and prejudice, however, are not likely to advance the search for cost-effective alternatives to delivery of education. In the developing world, the effects of the economic crisis make the universal provision of conventional education by conventional means unlikely. Doing more of the same will no longer suffice. Distance learning cannot promise, and cannot be expected, to solve all of education's problems. However, experience, evidence and recent developments show that there are special niches and situations where distance learning can play a major positive role. These niches are found in

- secondary education—where there is a lack of specialized teachers and resources to expand schools;
- teacher training—where combinations of distance and in-residence workshops can help teachers upgrade and update their knowledge and skills;
- undergraduate and graduate education, where students are more independent and able to choose appropriate courses of action; and
- technical pre-service, in-service and on-the-job training, where the need for the standardization of skills and opportunity costs are at a premium.

In addition, use of open broadcasts or video cassettes can contribute to, substitute for or supplement conventional face-to-face instruction. In many Canadian and U.S. institutions of higher learning, students can take one or more courses by distance education; the method of study—whether it takes place on campus or 100 miles away—will not be reported on the transcripts. The same faculty members usually teach both distance and regular students. Increasingly, materials prepared for distance education institutions are being used by conventional courses. Combinations of distance education and in-residence sessions are a common form of maximizing the cost savings and the comparative advantages of both face-to-face and distance education modes. All these new developments contribute to overcoming the barriers that exist between distance education and traditional education.

Finally, with telecommunications developing at a fast rate, quality distance education will soon become a matter of international competition. Malaysian students who used to go to Australia and Canada for educational training are now able to complete the first two years of their training without leaving their country. Students from China can obtain a master's degree at a prestigious engineering school in the United States through satellite broadcast programs. The Nova School of Social Studies in New York enrolls distance learning students from 18 countries in its master's degree programs. Given this new wave of technology, developing countries will be able to do little to hinder the challenges that good quality, alternative education can bring to local standards and practices. ■

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hand, have benefited from the opening of new markets.

High Quality Media, But Where's The Mix?

Reports and student feedback indicate that distance education courseware is well regarded, even at conventional universities. In countries like Pakistan and Sri Lanka, where university courses have traditionally relied on texts from abroad, open universities have often provided the first materials in the local language. Since most open universities are new, their courses are generally more up-to-date than conventional ones. Moreover, since they are normally constructed using principles of instructional design, they are better organized than courses regular professors construct based on knowledge of subject matter only. For these reasons, distance education materials are being used successfully in self-instruction by open university students and, increasingly, by students and professors at conventional universities.

Regarding media mix, reports indicate that most distance education programs are based primarily on a single medium: print. Promises to use the new electronic media (TV, computers, and VCRs) have not been very fruitful. Even where TV is used extensively, as in China, its potential has not been exploited to the fullest—what students see are, for the most part, merely talking heads. There are many reasons for this shortfall, including:

- shortage of production expertise;
- scarcity of hardware for reception;
- expenses of production and maintenance; and
- problems of access to appropriate broadcast time.

The only new medium that shows promise of widespread use combined with print materials is audiocassette recording. Audiocassettes are cheap, play-back equipment is available everywhere, and time of use is very flexible. As VCR use becomes more widespread, video may begin to show similar appeal. In fact, a

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video can replace many aspects of face-to-face tutoring. In contrast, the use of computers has been extremely limited and restricted to a few specialized courses where students are able to come to well-equipped distance education centers.

Student Support Is Available, But Is It Enough?

The image of the individual learner in constant contact with a tutor through the mail or by phone—a reality in some developed countries—is not likely to be seen in Asian distance education programs. Some programs, such as those offered by USM's Off-Campus Program in Malaysia or Sukhothai Thammathirat Open University (STOU) of Thailand, do have effective outreach programs and brief campus residency requirements. However, most distance education students in Asia are essentially on their own. In India, a study of 17 distance education programs showed most to be deficient in student support services. At Pakistan's AIOU, typical reasons given for drop-out rates as high as 60-70% for some courses were untimely receipt of course materials, and late tutor feedback on course assignments.

In Indonesia, tutoring for UT courses is provided by lecturers at local conventional universities. A recent study of voluntary tutorial attendance for selected courses shows rates falling from 85% to 50%, and then to less than 10% over three years. During the same period, as many as 50% of the students became involved in informal study groups or unofficial tutoring programs. Having gotten the message, the UT is now working on ways to subsidize tutoring services and study groups that students can organize themselves. In short, student services for distance education programs in Asia have not been able to adopt many of the student support systems used by open university programs in developed countries. This is one area where institutional innovation and experimentation continue to be needed.

Career Benefits For Graduates, Who Cares?

Information on the benefits distance education offers graduates is scarce. Many programs are so new they have few graduates to trace. Another reason why information isn't available is that universities are not concerned about the employment records of their graduates—yet. Still in the early years of operation, they are preoccupied with recruiting and retaining a critical mass of students. Because so many students are already in the workforce, when universities do become interested in graduates' careers, the main question will be whether the job performance and the occupational mobility of graduates have improved. An IDRC-supported tracer study conducted by STOU in Thailand addressed some of these issues. A sample of graduates from education, construction management and local administration programs did improve job performance, although generally not as much as they had originally hoped. Some were also geographically mobile, but not in the expected direction, the net flow going from the city to the country. A likely explanation for this trend is that graduates were promoted to their first administrative posts and then assigned "up-country." If these findings are replicated in other fields and locations, they could be used to contradict the common criticism of distance higher education that it tends to draw talented people away from rural areas.

Summary

Distance higher education is expanding at a very rapid rate. Existing institutions are improving their capacities to meet old and new demands. There is no question that distance education institutions will play a role in meeting accelerated demands for higher education made by ever-increasing numbers of high school graduates and working people in search of a second chance. Yet the public is and should continue to be skeptical of the capacity of these organizations to deliver. Unlike conventional universities, the burden of proof is still upon them. Ultimately, acceptance depends upon their ability to produce hard evidence of goals accomplished and promises fulfilled. ■

Dean Nielsen is a Principal Research Scientist at the Institute for International Research and is currently conducting research on distance teacher training for the A.I.D.-sponsored BRIDGES project.

Teacher Training: The Quick Fix That Stuck

by Gary Coldevin

Sustained, high population growth in many Third World countries has not only placed undue pressure on countries to provide adequate food, shelter and health care services, but also has placed additional burdens on already inadequate educational resources. Prominent among these inadequacies is the supply of trained teacher corps, particularly in rural areas where the majority of people still reside. Forty percent of the population in most developing countries is now under 15. In the wake of this "under 15" population bulge, conventional teacher training colleges have been unable to keep pace with rapidly expanding demands for education, the shortages being most pronounced at the primary level.

Continually high birth rates are one of the most apparent causes of teacher shortfalls. Africa's lack of teachers is the most acute in the Third World, a result of an average annual population increase of 3%. Africa's population is doubling every 24 years; 45% of its citizenry are under the age of 15. Hasty plans to achieve universal primary education have also contributed to teacher shortages in Africa. For example, in 1976 alone, three million new students entered Nigeria's primary school system. This influx of students called for the immediate placement of 33,000 additional staff—a 25% increase in the teaching corps—and required 290,000 new teachers by 1982.

Tanzania experienced similar problems when it abolished school fees in 1977 and legislated mandatory enrollment for the first seven years of primary school. Thirty thousand new teachers—a doubling of the teaching staff—were needed over a two-year period. The cost of expanding college-based training, if it could have been done at all, would have involved an expenditure in excess of Tanzania's recurrent annual budget for all of education.

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Algeria offers another dramatic example. When Algeria gained independence in 1963, student enrollments immediately doubled. At the same time, most French expatriates—who formed the bulk of the teacher corps—returned home.

The recruitment of pedagogically untrained or academically unqualified personnel adds a qualitative dimension to teacher shortfalls. Again, these deficiencies have been most pronounced in Africa, where the lack of qualified teachers is compounded by a legacy of limited teacher training facilities inherited at independence. As recently as the early 1980s, figures estimating the number of unqualified primary teachers ranged from a high of about 70% in Gambia, over 50% in Nigeria and Zimbabwe, to 36% in Lesotho and 20% in Malawi, Uganda and Zambia.

A sweep of selected countries in other regions in the mid-seventies revealed situations only marginally better—if at all. Forty percent or more of primary teachers in Bangladesh, Sri Lanka, Guyana and Jamaica were untrained. India also lacked trained teachers; over half of its primary teachers were listed as unqualified. At present, it is estimated that 20 to 30% of the world's rural primary teachers are either professionally untrained or academically unqualified. Many countries report substantial deficiencies at the secondary level as well.

Strategies For Coping With Teacher Shortages

As a matter of course, most countries have attempted to increase the output of teachers from conventional teacher training colleges. In some cases, the lowering of entrance standards accompanied by a shortening of college preparation time has been one way to increase output. By and large, however, national institutions have been unable to keep pace with the demands, and stop-gap measures have been initiated to ease shortages. Double shifting, increasing pupil-teacher ratios, and increasing dependence on expatriate teachers have been some of the remedies.

Some solutions rely upon media-driven strategies. Some Third World countries are realizing that the possibility of ever being able to provide enough schools and teachers is remote. These countries have begun to look to radio education programs, supplemented by print and support from community-based coordinators, to deliver out-of-school primary education to those not served by the formal system. ACPO (Accion Cultural Popular) in Colombia and A.I.D.-funded RADECO (Programa Radio Educativa Comunitario) in the Dominican Republic are the two best examples of out-of-school equivalency education.

Other programs have tried a more direct approach, placing untrained assistants in classrooms to manage instruction provided by television and reinforced by upgraded text materials. The best examples of this type of in-school equivalency are programs conducted in American Samoa and the Ivory Coast. Still another variation, intended to improve the quality of school offerings, is the use of school broadcasts, usually radio.

> *... Third World countries are realizing that the possibility of ever being able to provide enough schools and teachers is remote.*

In this case, teachers have the option of using or not using the broadcasts to enhance daily lesson delivery. Examples of this approach include the Schools Broadcasting Service in Kenya and the A.I.D.-sponsored interactive radio projects in Mathematics (Nicaragua, Thailand and Bolivia), English (Kenya and Lesotho) and Papua New Guinea (Science).

Of all the strategies attempted, however, the one that has steadily gained the most ground in the past two decades involves recruiting untrained or unqualified teachers, pressing them into service, and then bringing them up to pedagogical or academic certification through distance education. The benefits of this approach are manifold:

- for teachers, home-based study means attaining professional certification or academic upgrading without interrupting earnings—a significant factor when many rural teachers also farm;
- in-service training obviates the problem of finding substitute teachers who may have poorer qualifications than the teachers they are replacing;
- in-situ training reduces the possibility of urban migration that may result when college-based trainees do not want to return to their rural posts;
- larger numbers of teachers can be served at one time and at lower costs than with campus-based instruction.

Studies show that training costs for distance education students are typically one-fourth to one-half as expensive as conventional instruction. The teachers' ongoing work experiences can serve as a basic resource for their studies. Learning can be applied in the classroom immediately, and distance education print materials frequently serve as valuable references in areas where access to libraries is minimal. Sharing learning experiences and course materials with village-based colleagues also provides a multiplier effect. Existing evidence, although limited, shows that distance education-trained teachers perform as well, academically and pedagogically, as those trained at conventional campuses.

Notwithstanding these positive attributes, a number of problems remain when trying to assess how good distance education training really is. Although research literature consistently suggests that in-service training has a positive effect on the quality of lesson planning, instructional skills, and teacher attitudes toward curriculum change and educational reform, most of the studies were performed in conventional settings. Much more research validating the effectiveness of training at a distance on teacher performance is needed, particularly in terms of longitudinal effects on the end product—primary and secondary student learning outcomes. Also, more attention should be paid to examining the effectiveness of different distance education organizations, course delivery systems, and tutorial supports for village-based trainees.

Models Of Current Practice

It is estimated that at least 50 Third World countries are involved in some from of distance teacher training. Few countries, if any, now rely on correspondence (print-based texts and exercises) alone; instead, they use correspondence combined with broadcasting and other support media, correspondence with occasional face-to-face sessions, and the three-way combination of

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(COLDEVIN *from page 6)*

print/broadcasting/occasional residential teaching approaches. The broadcast medium is usually radio, but some programs, particularly those offered by distance education universities, use television as well. Tutorial counseling and local resource center support, however, vary a great deal, and represent the most pressing challenges to the bulk of operations. Virtually all Third World distance teaching universities have active teacher certification and/or degree programs (e.g. Costa Rica, Pakistan, Thailand, Venezuela, Colombia); some provide academic upgrading as well.

Other dual mode operations, like those of the last two regional universities in the world, the University of the South Pacific and the University of the West Indies, offer only in-service teacher training programs in their School/Faculty of Education distance operations. Some countries, like Lesotho and Swaziland, have opted for sandwich programs, combining campus-based courses with periods of field teaching and study through distance education. In a variation of this method, Tanzania's three-year in-service program had trainees studying at a distance three days a week and teaching for two. With an intake of 15,000 teachers annually, 45,000 teachers were certified from 1976 to the early 80s. The RETT (Radio Education Teacher Training) project in Nepal prepares primary teachers for secondary school certificates through a combination of interactive radio and self-instructional packages administered over a ten-month period. As these examples demonstrate, the variety of approaches is staggering and makes program generalizations difficult.

Four Cases

A snapshot overview of four systems begun during the 1980s illustrates the need for distance education training and the diversity of distance education methods.

Pakistan. Approximately one quarter of all primary teachers in Pakistan enter the schools untrained—60,000 did so in 1987. Pakistan has been offering in-service training courses for primary teachers through the Allama Iqbal Open University (AIOU) since 1980. The program is divided into two parts. Each part consists of 18 weeks of study followed by one week of practical workshops and three weeks of supervised teaching practice. Print-based courses are supplemented by weekly radio broadcasts and tutorial sessions held every two weeks. Under Pakistan's current planning, at least 20,000 additional teachers will be needed each year from 1987 to 1993, but as of 1985, Pakistan's annual teacher training capacity was in the neighborhood of 11,000. Current enrollment in AIOU's untrained primary teacher program, 5,000 per year, will have to be strengthened to just meet rising demands, let alone clear up the backlog of uncertified practicing teachers.

> *... given the continuing economic crises in most Third World countries, teacher training at a distance is the only feasible way to attempt universal primary education.*

Burma. Across the waist of the Indian sub-continent, Burma has been struggling with a similar problem. The latest data available (1984) suggest that out of the 127,000 primary teachers needed, only 90,000 exist, leaving a shortfall of roughly 30%. Twenty-seven percent of the available teachers are uncertified. Burma's response has been to redirect its 13 primary teacher training colleges from a one-year, pre-service program to in-service training to clear the backlog. At the same time, a previously existing two-year in-situ program offered through correspondence and residential sessions will be strengthened using television, radio and tutorial support, and a wider distribution of resource centers. About 55% of the current annual intake of 5,000 students is handled through home-based distance teaching.

Zimbabwe. At independence in 1980 following a protracted period of internal war, Zimbabwe opened its primary school doors to an additional one million entrants over a two-year period (from 800,000 in 1980 to 1,800,000 in 1982). This necessitated the immediate employment of over double the existing teaching corps (from 21,000 to 46,000), composed primarily, like the other examples noted earlier, of untrained recruits. In this case, the strategy employed included a four-year sandwich program beginning with a 16-week college-based session. The annual pattern thereafter was two terms of teaching, backed by correspondence study, followed by a three-week residential session. A final 16-week college course at the end of the fourth year completed the cycle and graduated each student as a standard qualified teacher. The so-called emergency ZINTEC program (Zimbabwe Integrated Teacher Education Course) has apparently been so successful that plans have been made to include a distance teaching component in all college-based teacher training.

Kenya. In addition to being one of the pioneers in the use of distance education for teacher training in Africa, Kenya's program also takes a revitalized look at the uses of multiple media to educate large numbers of untrained personnel. Kenya began using distance education to train unqualified teachers in 1968 by upgrading courses for about 25% of the teaching force who were classified as uncertified at the time. By 1974, most of the 10,000 or so targeted teachers had graduated and the program was halted. During that year, however, the government announced the elimination of school fees for primary grades one through four, and extended the abolition of fees one grade upward each year to the seventh grade. The elimination of fees, plus an average population increase of 3.5%, increased enrollments to the point that, by 1980, 40,000 unqualified teachers, or a third of the teaching corps, had to be hired and the program reactivated to train them.

In 1985, Kenya's Fifth Development Plan launched the 8-4-4 system, (eight years of primary school, four years of secondary school, and four years of bachelor-level university). This necessitated the recruitment of 22,500 additional untrained teachers that, along with those already in the system, brought the total number of unqualified teachers up to 50,000—again, about one-third of the nation's primary teaching force. Nineteen eighty-five also marked the inauguration of the College of Adult and Distance Education as one of six constituent colleges of the University of Nairobi. In addition to offering the first

(Continued on page 15)

Principles into Practice goes beyond trends and policies. We asked Jamesine Friend, Tony Dodds and Delayne Hudspeth to describe how principles of instructional design, motivation and feedback can be put into practice.

Distance Education and Adult Learning

by Tony Dodds

When the International Extension College was set up in 1971, distance education, at least in English, had not been born. We talked about the new educational experiments we hoped to promote by collecting and sharing experiences from and with different parts of the world; we talked about three-way teaching. The three ways were:

- *Correspondence Education*: This, in origin, provided education through the exchange of letters between tutor and students; at its best, this kind of personal exchange is maintained in modern correspondence courses; it often, however, deteriorates to a formalized mixture of rote-learning from printed texts followed by a testing/marking interaction.
- *Educational Broadcasting*: By its very nature, most radio or television education is one-way communication; it can—and when used well usually does—elicit reactions from students, though rarely does it create interaction between students and the "teachers".
- *Occasional Face-to-face Instruction*: Until the mid-sixties in many parts of the world, this was the most common form of adult and nonformal education. Weekly evening classes offer a regular form of part-time study, but by their regularity exclude many adults whose working and social timetables make frequent attendance difficult; short residential courses allow for intensive educational experiences, but their very shortness is their limitation.

In the early sixties, the demand for adult education began to grow—as did predictions that this demand would continue to expand as adult work and leisure patterns changed in future decades. In England, this led to attempts to seek ways to bring these three until then separate traditions of education together. Out of these attempts grew the National Extension College, the Open University and the idea of three-way teaching.

The Loneliness Of The Long Distance Learner

Terminologically, however, three-way teaching is dead and distance education is here to stay. Distance education is becoming an academic discipline in its own right. Most theorists and practitioners consider programs that have a high degree of organized interaction and regular, even though infrequent, face-to-face instruction to be included in the definition. One school of thought, however, claims that any system that includes significant amounts of face-to-face interaction between students and tutors (tutorials) or between students and students (group study) is not genuine distance education. To some extent this school draws on the independent learning tradition of distance education with its emphasis on student control of the pace, place and time of learning.

The purpose of this article is to argue strongly for recognition of the crucial role interaction plays in any humane distance education program that aims to be widely effective. To date, nonformal education has been seriously neglected in the development of distance education. The loss of terminological purity seems a small price to pay for increasing students' opportunities to interact with each other and with their tutors.

Nonformal Education And Distance Learning

The argument for a drastic expansion of nonformal education is twofold. A frighteningly large proportion of the world's population has been deprived of formal education opportunities as children. As adults their educational needs are practical, immediate and life-related rather than certificate-oriented. At the same time, the ability to reach most of them with traditional class-based adult education is strictly limited, especially in the Third World where the need is greatest. The advantages of distance education—economy, the ability to enter into students' homes, the flexibility of time and place—are obvious. The problems however, are equally great. A very large number of the educationally deprived of the world are illiterates, so the central component of distance education—print—is of limited direct individual use. Illiterate adults, together with those who are literate but academically inexperienced, are not used to structured learning and are ill-equipped to study, from whatever medium, on their own. Finally nonformal education often teaches practical skills for immediate application. Distance education methods have notorious difficulty teaching practical subjects.

Therefore, if distance education methods are to be used at all—and in the light of the urgent need it is irresponsible to ignore them—they should be used in group learning situations. Most successful examples of nonformal education programs that have used distance education use it this way. Three examples offer excellent illustrations. The first one, in Zambia, has existed for several years; the second, in Pakistan, has grown from a small research project into a university program. The third, in Ghana, is still in the planning stage.

Cooperative Education Campaigns In Zambia

A pilot project modeled on the mass Radio Learning Group Campaigns of Tanzania and Botswana in the 1960s and 1970s, Zambia's Cooperative Education Campaigns were carried out in the country's central region in 1982. A series of radio programs and accompanying printed study-guides made the course available to organized rural study groups who listened, studied, discussed, and made decisions based on the course.

A vital component in the program was a series of training and briefing courses developed for the study-group leaders who organized the groups and led discussions and follow-up activities. The pilot campaign in 1982 was a success, reaching 5,000 participants. From 1983 to until now, Zambia's Cooperative College has launched a series of similar annual campaigns on a nationwide basis. On average, they reach at least 20,000 people with each campaign. Evaluation studies suggest that significant

(Continued on page 9)

(DODDS *from page 8*)

learning about cooperative practices occurs and that the campaigns have had a significant impact on the level of participation in cooperative activities.

Functional Education Programs In Rural Pakistan

Between 1982 and 1985, the Allama Iqbal Open University (AIOU) of Pakistan ran an action research project in a district of the Punjab province that attempted to develop a distance education program to provide nonformal functional education to people living in rural areas. The program's participants were predominantly illiterate—especially the women. Their access to formal educational institutions was strictly limited—especially for women. The potential impact on the participants' lives—especially women's lives—of learning new information, new skills and new attitudes was enormous. The Functional Education Project for Rural Areas (FEPRA), developed and tested an effective package of educational methods based on a series of simple visual printed materials and audiocassette recordings which were studied in organized study groups. As in Zambia, training of and support for study group leaders was an important component of the package. These methods were applied to several different subjects—Childcare, Poultry Keeping at Home, Livestock Management, Agricultural Credit and Electricity in the Village. The course materials were prepared by AIOU university faculty members, guided by careful field research on audience needs and knowledge, attitudes and practices related to the subjects.

> *Distance Education methods have notorious difficulty teaching practical subjects.*

According to FEPRA's experiences, carefully constructed outreach supervision and support were just as important as the teaching methods and materials. By the end of the project, a small field team was able to reach 600 learners per course cycle. AIOU is gradually expanding the program by sending small teams of field workers to other parts of the country and by increasing the number of courses offered.

Mass Functional Literacy Campaigns For Ghana

Ghana is just emerging from a period of severe economic recession. It has accepted and is implementing harsh measures of economic and structural adjustment as a means of re-establishing economic development. But this adjustment, like the recession that preceded it, affects the poorest sections of society the hardest. The government is therefore implementing a program of short-term economic interventions designed to promote self-help and self-employment activities among the poorest sections of society. These people, however, are largely illiterate, with little access to education in the past. Without literacy—literacy directly related to development activities—they will not be able to turn short-term interventions into long-term improvements in living standards. So the government is also launching a series of functional literacy campaigns. The campaigns will rely heavily on printed self-study materials, local radio and study groups. Literacy classes will at be the core of the campaigns, forming the middle stage of a three-stage program. The program will begin by organizing pre-literacy study groups that will use radio and visual print materials to study basic development themes—health, water supply, income-generation, and community self-help initiatives. In its second stage, the program will offer literacy classes using functional literacy primers developed around the same themes. Finally, the program will culminate by forming advanced study groups who will use post-literacy readers. Radio programs will support all three stages of the campaigns and will be an integral part of the learning package. The aim of the program is to reach 5 1/2 million illiterates in eight or nine years, an ambitious goal.

Conclusions

In all three examples, the target audience is educationally-deprived rural people in Third World countries. In all three, the subject matter is of vital concern to their livelihood and well-being. In all three, the aim is to reach large numbers of people scattered across wide areas with limited financial and personnel resources.

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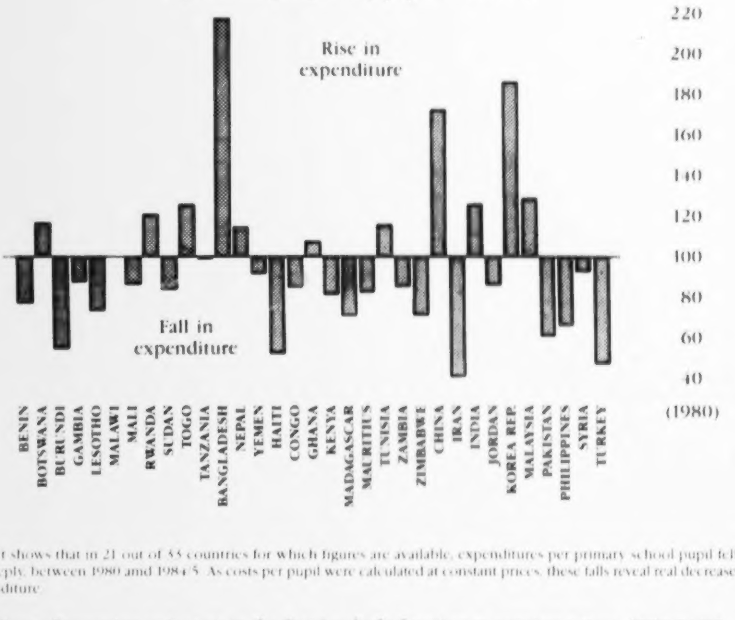
Falls in primary school spending

Expenditure per primary pupil 1980-84/85



The chart shows that in 21 out of 33 countries for which figures are available, expenditures per primary school pupil fell, often steeply, between 1980 amd 1984/5. As costs per pupil were calculated at constant prices, these falls reveal real decreases in expenditure.

Indices of recurring unit costs in the first level of education at constant prices, 1980-84/85 (1980 = 100).

SOURCE: *State of the World's Children*
UNESCO, 1988

(**DODDS** *from page 9*)

Different combinations of media and different organizational and materials development approaches are being used. But all combine distance-learning media and group interaction. All use media and packaged learning materials to enable people in remote areas to organize and lead groups of illiterate and neo-literate adults to learn and study together. The subjects they are studying and the group-learning methods being used lead to group decisions and group actions. Distance education purists might not agree that these projects qualify as distance learning since almost all the learning takes place in groups through face-to-face interaction. The learning could not take place at all, however, without the distance teaching media. What these projects do illustrate is the vital relationship between distance learning and face-to-face interaction. However it is defined, this combination has considerable potential for use in countries where most of the adults have never been to school. ■

Tony Dodds is Director of the International Extension College in Cambridge, England.

WHO Employment Opportunities: Health Promotion

The World Health Organization's (WHO) Global Programme on AIDS (GPA) plans to advertise posts in the areas of AIDS Health Promotion Materials Exchange (Network of Centers and Newsletters); Information, Education and Communication Strategy Development and Implementation; Condom Services Promotion (including Social Marketing); Communication Research and Evaluation; and AIDS Health Promotion Educational Systems (schools, workplace, etc.).

Graduate studies and significant experience required. For copies of post announcements write: Post Announcements, GPA/HPR, World Health Organization, 1211 Geneva 27, Switzerland.

The Quality of Instructional Messages

by Jamesine Friend

Distance education may be a boon to education. Or it may not. Media such as radio or television may be the best and least costly way to improve education, but unless the instructional quality of the program is high, media may simply be a waste of money and broadcast time. The media cannot educate unless they convey an educational message. If the message is truly educational, the media can be good educators.

A good educational message is more than just educational content. Content must be presented in an appropriate sequence, at a suitable pace, with sufficient opportunity to practice, etc. A few of the qualities of a good educational message are described below.

- *Active Involvement.* In most cases, lectures are not an appropriate way to convey an educational message. Lectures encourage passive listening, whereas, for most subjects, the learner must be actively involved in order to absorb and retain concepts. Active involvement means different things to different people. In distance learning, involvement doesn't mean simply psychological involvement—being interested in the story, able to identify with the characters, and so on. Active involvement is more that this; it is the cognitive involvement of the listener in the learning process. Listeners should think about the message, internalize it, and accommodate it to their own private world views. The listener should be a processor of information, not merely a receiver.

  For young children, involvement in the learning process is facilitated by doing something physical—writing in a notebook, reading aloud from a primer, answering questions given by a radio character. But the physical activity itself is not the goal. Physical activities simply facilitate mental activity. Physical and oral activities are especially desirable when teaching young children since they help stimulate children's interest and help them focus their attention on the task at hand. Learning will not occur, however, unless physical activities invoke the appropriate mental activities. Although physical participation helps young children to become mentally involved, participation does not have to be physical. Participation isn't always obvious, especially for older students. Mental calculation, for example, is considered active involvement, even though the action is not visible to an observer. Silent reading is another example of a covert activity.

- *Appropriate Language.* Stimulating active rather than passive listening demands a great deal from the writer of instructional messages. Learners cannot be actively involved unless they clearly understand the information being conveyed and also understand what is expected of them. To be understood correctly, the language of instructional messages must be appropriate for the learner and appropriate for the medium; oral communications, for example, should be more informal than print, with a lower density of difficult words, with shorter sentences, and with more rephrased rather than verbatim repetition. A good test of whether the language used in instructional messages is correct is to see if the audience can follow instructions and do required tasks correctly.

- *Appropriate Beginning Level.* Even if the instructions are well written in appropriate language, the listener may not necessarily be able to do the task. If listeners do not have the correct prerequisite knowledge, they may not be able to follow instructions. No matter what the medium, it's important that the level of instruction be correct. Two possible errors that involve level of instruction are (1) that instruction assumes knowledge the students do not have, or (2) that instruction teaches things learners already know. Both of these are undesirable; in one case, the students will be lost, and in the other, bored. To determine the proper starting level, it's unwise to rely on opinions, even from teachers who work with the students. It's better to establish objective measures, such as text data from group tests or individual interviews.

- *Proper Attention to Prerequisites.* It's not just at the beginning, but all through

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(**FRIEND** *from page 10*)

the instruction, that the content must take into account what the students know already; after the instruction is started, the students' knowledge will change, and their current state of knowledge must be known in order to proceed with appropriate instruction. At each stage, the students must master prerequisites before proceeding to the next topic. This implies that lesson writers must know what is prerequisite to what; there must be an organized sequence of instruction. If students start at point A, and you want to get them to point D, you must teach first B, then C, and finally, D. The principle is easy; it's the practice of determining correct prerequisites that is difficult. Even in subjects such as arithmetic, where it seems simple to determine the correct order, there are many pitfalls.

One of the problems in determining the prerequisite structure of instructional messages is identifying the skills students must learn to do each task. Depending upon the topic to be taught, there may be research that bears on the problem; such research should be carefully studied. When, as in most cases, there is insufficient research, special studies need to be undertaken. It has been said that the appropriate research tool is the task analysis. But task analyses are often prone to error; experts doing a task analysis are not always conscious of all they know and sometimes perform steps without being aware that they have done so. Also, the way experts do tasks can be very different from the way beginners do them. Even with these faults, a task analysis is a good place to start to find out how students really do a task. Also, researchers should go directly to the students to answer these questions, not to other experts in the field. Two of the most useful ways to investigate these questions are analyses of incorrect responses, and structured interviews with students, probing their thoughts and methods as they do the tasks under investigation.

● *Appropriate Examples.* In teaching skills and general concepts, another principle that underlies effective instruction is the use of appropriate examples. (Here example means both demonstrations and practice exercises). It is well known that children often learn more from examples than from explanations; to teach young children, you must use plenty of examples. What is less well known is that adults also prefer to learn from examples; research conducted with college students has shown that examples are almost universally preferred to explanatory text, and that explanatory text may be completely ignored when examples are given. But examples will not help unless they are appropriate. Appropriate examples are simple, easy to understand, and perfectly illustrative of the principles to be taught.

The media cannot educate unless they convey an educational message.

The sequencing of examples is also important. Start simple, and use more complex examples later. Also, many principles have exceptions. Students must learn the exceptions as well as the rules. First examples should show principles in their pure form. Examples that illustrate exceptions should come later—but not too much later; principles can be overlearned to the point where students become unwilling to accept the exceptions.

● *Distributed Learning and Practice.* Students learn primarily through examples, especially through exercises that they do themselves. It's not enough that examples appropriately embody the principles to be learned; they must also be distributed in time and in a way that will lead to effective learning and long-term retention. In general, but especially for skill subjects such as mathematics and reading, the teaching and continued practice of every skill must be distributed over a considerable amount of time.

Imagine, for example, that someone is teaching you the alphabet in a foreign language, and that there is a total of 60 minutes of instructional time to be devoted to this topic. There could be one 60-minute lesson, reciting the alphabet over and over again. Or the instruction could be divided into 20 three-minute lessons spread over a month. The shorter lessons are not only more interesting, they also provide more secure learning—learning that will not be forgotten a week or a month later.

● *Quality Control.* There is much we don't yet know about good pedagogy; many principles applied unconsciously by good teachers are still poorly understood or not recognized. Because there is more to teaching than just the principles that we can enumerate and describe, an educational message that applies all known pedagogical principles still may not be effective. Therefore, the only way to ensure quality of the finished product is to field test instructional messages with a typical audience, and use the information collected to improve the program. This is called formative evaluation.

The most common formative evaluation method is to prepare an entire course of instruction, try it out, then collect evaluation data to use in the revision of the materials. This revision method is the easiest but not always the most effective kind of formative evaluation. For very tightly structured subjects, such as arithmetic or reading, it's better to use a more demanding feedback system of formative evaluation. In the feedback system, formative evaluation is ongoing and simultaneous with the development of instructional programs. The feedback system allows instructional materials to be finely tuned to the ever-changing needs of the students. However, a common fault in projects that claim to use formative evaluation is that the data are collected but never really used. This, in turn, can jeopardize the instructional quality of the message—the very thing that determines success or failure of an educational program. ■

Jamesine Friend, President of Friend Dialogues in Shelby, North Carolina, is an instructional design expert specializing in radio and computer instruction.

Job Announcement

USAID/Chad is recruiting a population advisor to implement a national family planning program. A two-year contract is planned. Candidates should have an MA, MPH, or PhD, experience in family planning, fluency in French, and two years relevant experience in a developing country. Write: Mr Samir Zoghby, B.P. 413, N'djamena, Chad, or through the U.S. Department of State, Washington, D.C. 20520-2410, USA.

Feedback in Distance Education

by DeLayne Hudspeth

In a traditional instructional environment, considerable learning occurs as a result of the interaction between teacher and student, and among students. Less learning occurs when individuals are passive and do not have an opportunity to become actively involved. Although this truism may seem self-evident it reflects a profound problem in teaching distant learners. Traditional mechanisms of interaction such as discussion, buzz groups, role play, tutoring, and laboratories—possible with a local class of students—are difficult to arrange for distant learners. Consequently, when designing a distance education curriculum, we must capitalize on the interaction strategies which *are* possible—such as feedback.

Including feedback in distance education courses poses formidable problems. Knowledge about the student population is hard to obtain and channels of communication are frequently limited to print and other media which suffer from time delays. However, feedback does improve learning. This article will share some tips, strategies and techniques for incorporating learner feedback into distance education courses.

Informational Feedback

Learner feedback can be provided in several forms. The most common is immediate Knowledge of Response (KR). Put simply, the learner is asked to respond to a question or a problem, responds, and is then provided feedback information indicating whether his or her response was appropriate. This general term can be further delineated as either Knowledge of Correct Response (KCR) or Knowledge of Incorrect Response (KIR). An example of KCR—always knowing what the correct response should be—would be the use of flashcards to build language vocabulary. One side of the card might have the word or a picture of an item. The learner would search his or her memory for the correct name, provide a response either orally or in writing, and then turn the card over and compare this response with the correct response.

Knowledge of Correct Response is extremely useful for learning tasks that require a high level of automatic response such as vocabulary development, naming chemical structures, or calculation exercises where a single correct answer is appropriate. However, KCR can also be used for higher levels of learning. For example, the assignment might be "Discuss in one page the effect that debt forgiveness might have on international monetary trade." In addition to comparing his or her response, the learner could be directed to self-score this assignment by noting the number of key terms and relationships that should have been included. If the score was adequate the learner would proceed to the next topic; if not, the instructions would direct the individual to study the textbook and try again.

Knowledge of Incorrect Response (KIR) occurs when the learner makes a response and knows only whether the response was correct or incorrect; the correct answer is not provided if the learner was incorrect. If correct, the learner presumably associates the correct answer with the question to reinforce future correct answers. If incorrect, the learner must rethink the answer and try again.

Motivational Feedback

In a typical classroom, most instructors will communicate enthusiasm when learners are successful, through smiles or expressions of agreement. Distant learners also benefit from positive feedback. A few words written on the side of an assignment, a short note of encouragement, or other personalized expressions of support are especially useful for individuals who are studying in isolation. When scoring a written assignment, for example, the instructor should start and close his or her feedback with a favorable comment on an aspect of the student's response and should, at some point, include the student's name. Personalized positive feedback lets students know they are performing satisfactorily and, if provided early in a course, can help reduce student attrition.

Examination Feedback

Does immediate feedback after an examination provide enough benefit to the learner to justify the cost of providing it? To illustrate the problem: a midterm test, which covers a dozen essential concepts, is given at a remote site. Several weeks may elapse before the test is scored at a central site and returned, but in the interim the learner is expected to proceed with the next lesson. This lesson uses key concepts of previous lessons. If the learner is proceeding with incorrect assumptions he or she will continue to make mistakes. What can be done?

> *... feedback lets students know they are performing satisfactorily and, provided early in a course, can help reduce student attrition.*

One solution is to use a proctor and include in the test packet a copy of the correct answers. As soon as students are finished taking the test they are allowed, in front of the proctor, to compare their responses with the correct answers. For essay questions, a model answer highlighting key terms, important dates and concepts serves to clarify how the student should have answered.

Since this information must already be formatted for persons who will score the exam at the central site, it is simple step to provide this information in a format that can be used by a proctor. If security is an issue because the test must be given several times at the same site, then multiple forms of the test can be

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Audiovisual Materials for Nursing

The Beirut National College of Nursing is looking for audiovisual materials on nursing and health sciences for its library. If you can help, please send samples to the Clearinghouse. We will pass them on.

(HUDSPETH *from page 12)*

recreated—and probably should be prepared anyway.

If immediate feedback cannot be provided then every effort should be made to score and return the test as soon as possible before the student is expected to begin study on subsequent lessons. If this is not possible, then a test review sheet could be mailed back upon receipt of the examination. This review would briefly discuss the major points in the exam and could cite specific pages to be reread if the student was uncertain of mastery. Also, if it is known that most students will not receive the results of their examination before they begin study of the next material, the authors of the course material should provide a review of past material, especially of key entry knowledge concepts as part of the introduction to the new lessons. Although a general review is less useful than specific feedback it is still important that the learner be allowed to correct errors and not be handicapped with incorrect assumptions.

Appropriate Technology and Feedback

When considering devices and materials that can provide rapid and useful feedback, the microcomputer usually comes to mind. These dumb, patient machines are highly interactive, can take into account different learner needs, can provide instant feedback both to single questions and as a summary of total lesson mastery. However, many methods that do not rely on computers can provide feedback such as:

Practice Tests. These should be similar in form and substance to the formal examinations. A correct answer key or model written response should be sealed in an envelope to be opened only after practice. Instructional feedback can be included for each question.

Small Group Exercises. Even the most remote student can find some person to help. The assignment should be explicit in terms of the exact topic to be discussed, data to be analyzed, etc. After the group exercise is completed, a separate sheet can provide feedback in terms of what should have been covered or done. Where groups of three students can work together, one student might serve as an observer and use this sheet to provide immediate feedback as to whether the other two were performing successfully.

Checklist Response Sheets. If persons scoring essay tests and assignments do not have time to respond in detail to each student, a checklist can be prepared which lists common problems. The person who is scoring can quickly check those comments or suggestions that seem relevant. This response sheet can be personalized with a short note.

Questioning Strategies

In addition to formally providing feedback after an assignment or examination, it is possible to use the principles of feedback by embedding questions and answers in text, audio or video materials. Presentation information can be interspersed with questions, debate, short moments of reflection and other activities wherein the learner is involved and interacts with the subject. For example, when writing text material the author should deliberately intersperse questions and then provide discussion which contains the answer. A directive question is usually answered factually; a reflective question could be followed with the pros and cons of an issue.

Will students usually take the extra time to think through a posed question and formulate an answer before proceeding to read further? Most students, like most of us, will not interact with study material unless they are motivated to do so. How can students be motivated to interact with materials? Most students will interact with lesson material if several conditions prevail: if they are told to interact; if they are given examples on how to behave; if points at which they should respond are clearly flagged; and, if they perceive that following these instructions will provide some benefit, such as receiving a higher grade because they know more about the subject.

■

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Resources for Distance Educators

✔ The International Extension College in Great Britain has helped several African countries start distance teaching colleges. A non-profit organization that provides information, training and technical assistance on distance teaching, the College has produced a number of useful technical publications including *Course Development: A Manual for Editors of Distance Teaching Materials* and *A Short Guide to Distance Education*.

For more information, write: Information Officer, International Extension College, Office D, Dale's Brewery, Gwydir Street, Cambridge CB1 2LJ, England.

✔ Produced by the British Open University and Longman Group (UK) publishers, the journal *Open Learning* is written for practitioners of distance education. Although the content largely reflects British open learning experiences, the articles are useful and interesting to distance educators all over the world. Included in the November 1988 issue of *Open Learning* were articles on counseling by correspondence in distance education, developing engineering skills through distance learning, and new technologies likely to be used in distance education over the next ten years.

Open Learning is produced three times per year. An annual subscription costs £25 sterling (UK) or £28/US$49 (overseas). Enquiries can be sent to Longman Group (UK) Limited, Subscriptions (Journals) Department, Fourth Avenue, Harlow, Essex CM19 5AA, England.

✔ The *Journal of Distance Education* is published internationally by the Canadian Association for Distance Education (CADE). Its aim is "... to promote and encourage scholarly work of an empirical and theoretical nature, which relates to distance education in Canada and throughout the world." Recent articles have included "Pessimism and Reality: A More Up-to-date Look at Distance Teaching in

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(**RESOURCES** *from page 13*)

the Third World", and "Rural Community Development in Northeast Thailand: Training Graduate Volunteers in Market Development."

The *Journal of Distance Education* is published twice a year, in April and October, and is included in the membership of the CADE. Membership costs CAN$45 for individuals and CAN$195 for organizations (add CAN$5 to each if you live outside Canada). Write to CADE Secretariat, 151 Slater Street, Ottowa, Ontario, K1P 5N2, Canada.

✔ *Revista de Tecnologia Educativa* is published by the Organization of American States and the Chilean Ministry of Education's Centro de Perfeccionamiento, Experimentacion e Investigaciones Pedagogicas. Among recent articles: "Perfeccionamiento de educadores a traves de la modalidad a distancia", "La posibilidad de la educacion tecnico profesional a distancia", and "Extension universitaria a distancia: Funcion o apendice?"

Revista represents the thoughts and experiences of educational technologists from throughout the Americas and is scholarly in tone; its editorial board and international consultant committee reads like a "Who's Who" of educational technology.

For information about subscriptions, write to Casilla 16162, Correo 9, Santiago, Chile.

✔ The *American Journal of Distance Education*, produced by Pennsylvania State University, is designed for professional trainers, college teachers, adult educators, and other specialists in higher education, continuing education and communications. The journal focuses on the latest research and developments in methods and systems for the delivery of higher and continuing education to adults. Recent articles that typify its focus are: "Design Considerations in Selecting Teleconferencing for Instruction," "Pacing in Distance Education: Something for Everyone?," and "Asynchronous Electronic Communication: A North American-Thai Collaboration." The journal is issued three times a year.

Annual subscriptions cost US$18 plus postage outside the USA (US$3 for Canada and Mexico, US$7.50 elsewhere). Write to The *American Journal of Distance Education*, College of Education, Rackley Building, The Pennsylvania State University, University Park, Pennsylvania 16802, USA.

✔ The Open University in England has developed a model of higher education on which other countries have based their systems (see Dean Nielsen's article in this DCR). Its International Centre for Distance Learning, set up in conjunction with the United Nations University, publishes a variety of materials on distance learning. Write to the Learning Materials Service Office, The Open University, PO Box 188, Milton Keynes, MK7 6DH, England.

✔ The University of London's Institute of Education offers an annual four-month course on distance teaching in the Third World. Intended for educators who plan to work in distance education, the course is held April through July.

For further information, write to the Departmental Secretary, Department of International and Comparative Education, University of London Institute of Education, 20 Bedford Way, London WC1H 0AL, England.

✔ Finally, the Clearinghouse library has an extensive collection of documents on distance education, and provides information search services to DCR subcribers. We would like to include more samples of materials, course outlines, research studies, program reports and descriptions on distance education and other development communication fields. Please help us to serve you better by sending us samples of the materials you are using and by letting us know what information and materials you would like the Clearinghouse to provide more often. Write: Clearinghouse on Development Communication, 1815 N. Fort Myer Drive, Suite 600, Rosslyn, Virginia, USA. ■

Distance Education Bibliography

The Clearinghouse is developing a detailed bibliography on distance education. Copies will be available to readers in developing countries free of charge, and to readers in industrialized countries for free plus postage costs.

On File at ERIC

by Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files include papers and reports on training in the use of educational technology in distance education, a directory of computer training institutions in Asia and the Pacific and a discussion of two alternatives for using computers for teaching in distance education. All of the documents are available in microfiche. They are also available in paper copy from the **ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia, USA**. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. Shipping costs can be calculated on the basis of three microfiche per ounce and 75 microfiche or pages of paper copy per pound. Paper copies of Unesco publications are usually available through Unipub. *The ERIC Clearinghouse on Information Resources cannot fill orders for Unesco documents.*

◆ *Teachers and Their Use of Educational Technology. Report of a Regional Training Workshop* (Seoul, South Korea, September 16-27, 1985). 1986, 62pp. (ED 291 349)

The workshop described in this report from Unesco's Regional Office for Education in Asia and the Pacific focused on uses of educational technology in the training and upgrading of teachers and on promoting the use of appropriate educational technology techniques by teachers. Experiences in the use of educational technology are described for each of the participating nations, i.e., Bangladesh, India, Indonesia, Japan, Malaysia, New Zealand, the Philippines, Republic of Korea, Sri Lanka and Thailand. Participants also visited the Han Nam Elementary School, an experimental school in Korea that promotes the use of educational technology in the classroom. The report also includes a series of recommendations designed to improve teacher training in the use of educational technology. Available from EDRS only in microfiche for $0.82.

(Continued on page 15)

(ERIC *from page 14)*

◆ *Computers in Education: Inventory of Training Institutions, Publications, Societies in Asia and the Pacific.* 1986. 196pp. (ED 292 439)

This directory from Unesco's Regional Office for Education in Asia and the Pacific provides a listing of computer training institutions, computer associations and computer publications in 14 nations of Asia and the Pacific Region. The listing of 70 training institutions provides contact information and details on programs, research and major innovations for each institution. Recent and recommended articles about computer uses in education are also listed by country in this section. The listing of five computer associations gives contact information and a description of each association's purposes, programs, membership qualifications, and available scholarships. Available from EDRS only in microfiche for $0.82.

◆ Bates, Tony. *Computer Assisted Learning or Communications: Which Way for Information Technology in Distance Education?* Information Technology Paper No. 250. 1986. 18pp (ED 294 558)

In this paper, A. W. (Tony) Bates of the Institute for Educational Technology at the British Open University compares and contrasts two uses of computers for teaching in distance education: (1) systems based on structured programmed learning materials, i.e., computer-assisted learning, where the learner communicates as if with the computer; and (2) systems based on the communications functions of computers, or computer-mediated communications systems using electronic mail, conferencing and databases to facilitate communication between teachers and students. Bates argues that the two systems represent quite different educational philosophies, and that for distance teaching at a higher education level, the communications mode offers a more appropriate, humanistic and pragmatic route for further development. Available from EDRS in microfiche for $0.82 or in paper copy for $1.94.

■

Barbara B. Minor is a Publications Coordinator at the ERIC Clearinghouse on Information Resources, 030 Huntington Hall, Syracuse University, Syracuse, New York 13244-2340 USA.

(COLDEVIN *from page 7)*

university level degree program at a distance, the College also handles primary level in-service teacher training. Courses are presently delivered through print correspondence (80%), support radio broadcasts, and seven weeks of face-to-face tuition, staggered over holiday breaks, at 13 primary teachers' colleges.

Kenya's experience ranks as one of the more compelling examples of teacher training at a distance. Its annual population growth rate now stands at 4.1%, the highest in the world, with a doubling period of only 17 years. The average fertility rate is eight children per woman; 51% of its citizenry are under the age of 15. Even if the number of children were now limited to two per family, Kenya's population would stabilize at about 53 million. As it is, projections estimate that Kenya's population will only stabilize when it reaches 121 million, in 2030. Given the problems associated with educating today's population of about 23 million, the tasks facing Kenya's educational planners are daunting. Undoubtedly, distance education will play an increasingly larger role, not only in teacher training, but in other formal levels of education as well.

Interim Appraisal

Most developing countries adopted distance education for in-service teacher education as a quick fix for alleviating seemingly unsurmountable problems through traditional methods. But several programs initiated in the 70s have survived and many new programs emerging during the 80s attest to distance education's promise. More important, given the continuing economic crises in most Third World countries, teacher training at a distance is the only feasible way to attempt universal primary education. What started out as crisis management may, over time, develop into effective operations parallel to conventional systems, as several countries are discovering. The challenge now is not to question whether distance education will survive, but rather how, through research and comparative analysis, to make distance education better and more effective.

■

Gary Coldevin is a Professor of Educational Technology at Concordia University in Montreal, Canada.

Job Announcement

The FAO is recruiting an audiovisual advisor. Candidates should have seven years professional experience in the production and use of low cost audiovisuals (video, photography, audiocassettes, slides, print materials, etc.) for development purposes. Experience in adult education, community development and/or extension is important. A degree in social sciences or communications, working knowledge of English, French and Spanish desired.

Send resumes to: Silvia Balit, Development Support Branch, Information Division, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

Information Please...

Future issues of DCR will focus on:

- Community Radio for Development: Is radio the best kept secret in development?;
- The Environment: What role should communication play in improving the management of natural resources?;
- Information Technology: What's making a difference in the least developed countries?;
- Media-Based Training: Has technology improved access to or the quality of training? ; and
- International Literacy Year in 1990. What's different from before? Can technology help?

The Clearinghouse is eager to receive news of events; reports of programs, projects, and campaigns; research and impact surveys; and copies of manuals or samples of media. Send to: Clearinghouse on Development Communication, 1815 N. Fort Myer Drive, Suite 600, Rosslyn, Virginia 22209 USA

We asked John Mayo, acting as "devil's advocate," to cite the factors that will impede the growth of distance education.

Distance Education: Some Issues

by John K. Mayo

The articles in this report attest to the growing number and diversity of distance education systems initiated throughout the Third World in the past 15 years. Interest in open university systems and other forms of distance education has been fueled by a growing worldwide demand for education at all levels, by the inability of conventional institutions to cope with heightened demand, by the increasing availability of mass media, notably radio and television, and by the opportunities distance education offers to reduce instruction costs.

As is the case with virtually all multimedia systems, distance teaching is capital intensive. It customarily demands initial capital investment in course development and equipment. The bigger the distance teaching system, the more likely its costs per student will be lower than the costs of traditional programs. However, two caveats must be noted. First, if face-to-face instruction or tutoring is included—and experience suggests that it should be—system costs will rise in proportion to the number of students. Second, the addition of television, cassette recorders or other sophisticated learning technologies can raise system costs significantly.

In 1985, there were over four million students enrolled at open universities worldwide. Distance teaching is also emerging as an option for retraining classroom teachers in many low-income countries. The shortage of qualified classroom personnel is a major barrier to improving the quality of primary education in the Third World. Distance education offers many practical advantages for pre- and in-service teacher training, on-the-job training and other forms of nonformal education. This is particularly true where learners are unable to leave their communities to continue their education, either because they cannot afford to be away from home or because there is no one to replace them on the job. In such circumstances, correspondence, radio and occasionally televised instruction can reach learners while they continue to work and support their families.

Distance education has also increased rural people's access to educational opportunities of all kinds. The obstacles that restrict the distribution of materials or that limit contact with learners can be severe in remote areas. But these problems have not prevented rural development workers from participating in innovative distance retraining programs. Physical isolation and the costs of overcoming it, on the other hand, continue to be major impediments to participation in traditional training programs.

In the ways outlined above and discussed throughout this report, distance teaching has increased access to education and democratized educational opportunity in many nations. But at what cost and with what degrees of effectiveness? Are distance education programs capable of benefiting students and, ultimately, the societies which sponsor them, or are they merely ill-founded attempts to comply with hastily conceived and essentially unrealistic political objectives? Unfortunately, the proliferation and rapid growth of distance teaching systems in the Third World have outstripped research that compares the cost effectiveness of distance teaching with that of traditional programs. Early indications from the major Asian open universities, in China, Indonesia, and Thailand, suggest that costs per student are substantially lower than conventional alternatives. However, drop-out rates have been high—on average between 30-50%—and, in some areas, student services have been virtually non-existent.

Administrative control and logistical support also tend to deteriorate as enrollments increase. For this reason, distance education systems risk being labeled second class alternatives to established academic institutions. Key staff are frequently overworked and underpaid, and demands for course development generally rule out time for research or for direct contact with learners. Furthermore, the value and marketability of the certificates awarded by distance learning institutions continue to be questioned by traditional educators and other critics who correctly or incorrectly perceive distance education institutions to be diploma mills.

The roles assigned to communication media vary widely within distance learning systems. Although these systems are generally multimedia in character, students' learning activities are customarily centered on print at higher academic levels, and on radio or television within primary or secondary school equivalency programs. There are clear advantages to incorporating broadcast media within any distance teaching strategy. Radio and television can carry the major instructional burden, as is the case with the RADECO project in the Dominican Republic and in the growing family of "interactive radio" projects which USAID has co-sponsored in recent years. More often radio and television are employed in a supplemental role within distance education programs, delivering information in a timely and lively manner, and compensating somewhat for the print media's relative coldness and lack of flexibility.

The media, however, are not panaceas. Their effectiveness depends on the amount of time, content expertise and formative evaluation that are brought to bear on course design. Frequent feedback and testing are required to ensure that program materials achieve their objectives. As many distinguished observers of distance education programs have pointed out, differences within a given medium count far more than differences between media in terms of cost-effectiveness.

The hallmark of broadcast education continues to be its distributive power, its ability to reach large numbers of learners wherever they may be living, working or studying. By the same token, distance education can help meet people's educational needs and aspirations at different stages in their lives, no matter where they happen to be living. These attributes may best account for the exponential growth of distance learning programs in recent years. ■

John K. Mayo is a Professor of Communications and Director of International Studies at Florida State University. He is currently assisting the government of Nepal on the evaluation of the A.I.D.-sponsored Radio Education Teacher Training (RETT) program.

Supplement

Clearinghouse on Development Communication

1988/4
Supplement

Interactive Radio: Distance Education in the Classroom

"What's 14 + 7 + 2 ???" The voice asked. There was a pause. All eyes and ears were focused on twelve Honduran first graders. They were nervous. They were a long way from home. Even though this was lesson 100, (they had first had this lesson weeks ago), it was difficult for them to concentrate. Their hands were folded quietly on the tabletop but, underneath, legs and feet fidgeted uncontrollably. These first graders were here to show just how their interactive radio mathematics program worked.

"TWENTY-THREE!!!" came the reply in one unified shout. Participants at the Second Interamerican Conference on Interactive Radio patiently, silently calculated every problem along with the students during the half-hour lesson. When it was over, everyone was very proud of those first graders. Mental arithmetic isn't easy when you're seven; its even harder when you're trying to figure out 9 + 5 + 1 in your head in front a large group of people.

Every day these students, together with Honduran first graders from six regional districts, listen to the radio program *La Familia de los Numeros*, (The Numbers Family). An interactive radio instruction (IRI) program that helps children develop mental arithmetic skills, *La Familia de los Numeros* is produced by the Honduran Association for Socioeconomic Growth and Development (AVANCE), a private non-profit organization, with assistance from the U.S. Agency for International Development's Radio Learning Project.

AVANCE hosted the Second Interamerican Conference on Interactive Radio held November 14-18, 1988 in Tela, Honduras. Conference participants from Honduras, Costa Rica, Guatemala, El Salvador, the Dominican Republic, Ecuador, Bolivia, Belize, Malawi, Swaziland, and Nepal came to learn more about *La Familia de los Numeros*, and to share their knowledge and experiences using interactive radio programs. Participants also had a chance to discuss many of the factors that influence IRI program success. Workshops held throughout the conference focused on instructional design, creative scriptwriting, formative and summative evaluation, community support and involvement, radio production techniques and teacher acceptance in the classroom. More important, participants had the opportunity to share ideas and offer suggestions and advice to one another on how to solve some of the technical and logistical problems they can face implementing IRI programs.

A.I.D.'s interest in interactive radio began in the mid-seventies and early eighties, when it initiated the Nicaragua Radio Mathematics program, the Kenya Radio Language Arts Project and

(Continued on page 2)

*The 63rd issue of the **Development Communication Report** examines the growth of distance education programs worldwide over the last ten years. The articles included in this supplement look at the evolution of one distance education methodology--interactive radio instruction (IRI). As Tony Dodds points out in **Distance Education and the Adult Learner,** terminological purists may be reluctant to classify programs that contain significant face-to-face instruction as true distance education programs. Most IRI programs do contain some form of face-to-face or group instruction, but rely on the principles of distance education to educate. The majority of distance education programs give university and secondary school students access to education traditionally denied them. Interactive Radio Instruction expands educational opportunities at the primary level, where the greatest number of people in the developing world need education the most.*

A Honduran first grader at work

Supported by the Office of Education, Bureau for Science and Technology, U.S. Agency for International Development

Development Communication Report

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(RADIO *from page 1)*

RADECO, the Radio-Assisted Community Basic Education Project in the Dominican Republic. Last November, participants at the Second Interamerican Conference on Interactive Radio learned how well the second generation of interactive radio programs are doing. Three interactive radio programs, in Ecuador, Bolivia and Thailand are adaptations of the Nicaragua Radio Mathematics Program. A fourth program, in Lesotho, is an adaptation of the Kenya Radio Language Arts Project. Honduras' mental arithmetic project is based on interactive radio methodologies developed by previous programs. Honduras also plans to adapt the Kenya Radio Language Arts project to provide English instruction to English-speaking primary students of Honduras' Bay Islands. Costa Rica's new program replicates Honduras' *La Familia de los Numeros*. This January, Bolivia will begin developing an interactive radio program to teach health education to primary students. The Radio Education Teacher Training (RETT) project in Nepal is using interactive radio to train teachers. And the Radio Science Project in Papua New Guinea is developing a primary science education program for grades four, five and six. All are A.I.D.-sponsored projects, with the exception of programs in Thailand, funded by the World Bank, and Costa Rica, which is using internal government funding to finance its program.

All of these programs are based on interactive radio methodology; however, the educational problems each country faces have a profound impact on the uses and role interactive radio plays in improving basic education in each country. Differences between each country's interactive radio program were quite surprising. Below are brief reports on the directions some of the projects have taken.

Honduras

Conference participants learned how social marketing techniques can be used successfully to promote interactive radio by examining AVANCE's *La Familia de los Numeros*. Broadcasts of the new mental arithmetic program began for first graders in six regional districts of Honduras last April. To help underwrite program costs, AVANCE decided to sell *La Familia de los Numeros* as a product. Designed as a supplement to the official Honduran math curriculum, the program is marketed by AVANCE directly to Honduran teachers, who buy membership in the interactive radio system and receive a packet of materials. (There are two types of packets, one with and one without a radio; both packets contain a teachers guide and posters). An aggressive promotional campaign targeted at teachers, parents and students is underway to create awareness, demand and support for the program. Advertisements and promotional announcements appear on radio and T. V. and independent corporate sponsors are beginning to offer support. In its first year of operation, AVANCE had hoped to market the program to 60% of the first grade teachers in these areas. From April

(Continued on page 3)

COUNTRY	DURATION	SUBJECT	LEVEL	STATUS	TYPE*
Nicaragua	1975-79	Mathematics	Grades 1-4	Completed	1
Kenya	1980-85	English	Grades 1-3	Completed	1
Dominican Republic	1972-Present	Mathematics, Reading, Writing Natural & Social Sciences	Grades 1-4	Institutionalized	1
Honduras	1987-1990	Mental Arithmetic	Grades 1-4	Pilot	1
Bolivia	1988-1990	Mathematics	Grades 1-3		2
		Health	Grade 4	Pilot	1
Ecuador	1988	Mathematics	Grades 1-6 (Multigrade)	Research	2
Lesotho	1987-89	English	Standards I-III (6-8 year olds)	Pilot	2
Papua New Guinea	1986-1990	Science	Grades 4-6	Research	1
Thailand	1980-Present	Mathematics	Grades 1-3	Institutionalized	2
Costa Rica	1988-Present	Mental Arithmetic	Grade 1	Institutionalized	3
Nepal	1978-Present	Teacher Training	Post-secondary	Research	1

*1 = New Program; 2 = Adaptation of Existing Program; 3 = Replication of Existing Program

(**RADIO** *from page 2)*

to November 1988, 70% of the teachers in the target area began using the program. One initial criticism of the program was that teachers in the poorest areas could not afford membership. Paradoxically, program acceptance has been greater in rural areas than in urban areas. By the end of 1989, AVANCE plans to expand the program nationwide for first graders and to begin broadcasts for grades two and three. By 1990, AVANCE hopes to reach 350,000 primary school students.

1 2 3 4 5
La Familia de los Números
"Aprender juntos es más fácil"

Bolivia

Bolivia's interactive radio mathematics program is also managed by a private non-profit group. Fe y Alegria (Faith and Happiness), a catholic organization, has been asked by the Bolivian Ministry of Education to administer 315 primary school throughout the country. Fe y Alegria is attempting to counteract some of the many obstacles facing Bolivia's beleaguered education system. Depending on the region of the country, Bolivia's official school year begins and ends at different times. Teachers' strikes have, on average, reduced the number of school days from 200 to roughly 70. In addition to scarce teaching resources, Bolivia's school system is racked by high drop-out rates, absenteeism, teacher transfers, and migration of students. Adapting the Nicaragua Radio Mathematics Program curriculum, Fe y Alegria broadcasts radio math lessons in cooperation with eight regional radio stations. The most striking characteristic of Fe y Alegria's program is the importance and amount of community and parental support their program receives. Fe y Alegria plans to expand the program next year and will begin developing an interactive radio health education program for primary school students in January 1989.

((Continued on page 4)

RADECO: An Educational Alternative in the Dominican Republic

by Altagracia Diaz de de Jesus

RADECO, the Dominican Republic's Radio-Assisted Community Basic Education project (Programa Radio Educativa Comunitario) brings education to places where formal education cannot reach. RADECO uses the educational potential of radio to teach mathematics, reading, natural and social sciences to primary school age children living in the isolated southwest regions of the country. This area of the Dominican Republic is very mountainous making travel and communication extremely difficult. Few government resources reach the people living there. There are few qualified teachers and even fewer formal schools. But RADECO, essentially a distance education system for primary education, has become one solution to the fiscal and logistical problems facing the Dominican Republic's educational system and could serve as a model for other countries facing similar problems.

Within educational technology, radio has the largest potential for distance education. Interactive radio instruction encourages and develops attentiveness in younger children and thus encourages learning. Begun in 1982 as an experimental radio education project funded by the U.S. Agency for International Development, RADECO is based on interactive radio instruction methodologies developed by the Nicaragua Radio Mathematics Program.

From 1974 to 1979, A.I.D. sponsored an experimental education project to teach mathematics via radio to primary school-age children in Nicaragua. Then, from 1980 to 1985, A.I.D. initiated the Kenya Radio Language Arts Project to see how well the interactive radio instruction techniques developed in Nicaragua could be used to teach another subject--in this case a second language, English. Results from both projects were very positive, proving the educational potential of radio and the effectiveness of interactive radio instruction. But both projects were developed as supports to formal primary education, offering reinforcement to the teacher in the classroom. RADECO, however, teaches students where there are no teachers or classrooms. Dominican Republic's educational system is completely innovative. First, RADECO uses radio as a fundamental medium for the learning-teaching process. Second it uses distance education to reach children ages seven to fourteen.

RADECO teaches more than mathematics. Lesson contents cover all areas of basic education, including mathematics, reading, writing and social and natural sciences. In RADECO, the radio is the teacher. Children gather together in a community center and, guided by a leader or "radio aid," listen to one hour radio lessons. The one-hour programs for each grade are transmitted by regional radio stations at different times of the day, for example, from two to three p.m. for first graders; and from four to five p.m. for third graders.

Lesson contents are designed and delivered in short segments of two to three minutes and are repeated over many lessons in different formats until the set objective is achieved. Lessons contain 30 minutes of math and 30 minutes of language that integrates social and natural sciences study. Each grade contains 170 lessons, covering the minimum current official program. In order to achieve all the objectives, each lesson is segmented into areas of knowledge (math, reading-writing, social and natural sciences),and by psycho-motor, physical, and recreational exercises.

The teachers' roles are played by two voices, one female and one male. A child's voice plays the role of the pupil in the classroom; this voice participates by asking and answering questions to reinforce instruction.

The radio lesson communicates instructions, information, questions as well as questions and responses intended to reinforce interaction between the radio-teacher and the pupil-listener. This

(Continued on page 4)

(DE JESUS *from page 3)*

process also allows the student to think and reason before answering.

Students are also provided with print materials to work on during each lesson. Periodically, the lessons at the community centers are supervised and evaluated by RADECO staff, and the achievement of the objectives is reported. Upon completion of a grade, a cumulative evaluation is made, to individually evaluate each child, although grade promotion is made by groups. Each grade is given during a period of 38 weeks; between each grade there is a six-week vacation period. The basic cycle of four grades takes three years and five months.

Centers are located in the marginal and rural areas of the Barahona, Pedernales, Independencia, Bahoruco, and San Juan de la Maguana provinces. The centers are supported not only by RADECO but by local community organizations. Each community organizes an association of parents and friends that supervises the functioning and maintenance of the community center.

RADECO has successfully passed from its experimental phase to a nonformal education program, administered by the Dominican Bureau of Education, Arts and Culture. When the program began, RADECO reached about 24 communities. Since the program was institutionalized in 1986 as an official program of the Bureau of Education, Arts and Culture, it has grown to serve 82 communities in five provinces. During its experimental phase, RADECO was completely funded by A.I.D. When the project was institutionalized in 1986, the Bureau of Education took responsibility for the program's administrative costs. External funds were allotted to underwrite the program's continuing costs as part of the Caribbean Basin Initiative (CBI). For the past two years since institutionalization, the project's budget consists of 75% external and 25% internal funding. One major characteristic of a systematic nonformal educational radio program is that costs decrease proportionally as student enrollment increases. It is hoped that in the future the Bureau of Education will be able undertake all of RADECO's costs as the program's coverage increases.

RADECO brings basic education to children in remote communities where it is not possible to bring formal schools. Developing countries need education alternatives that allow them to improve their countries' quality of life at the least possible expense. Radio education is innovative and efficient. Using interactive radio instruction methodology, radio education can be even more effective and beneficial as an alternative for educational and socio-economic development.

Altagracia Diaz de De Jesus was the Project Coordinator for RADECO in the Dominican Republic.

(RADIO *from page 3)*

Ecuador

While Ecuador's basic education system has grown significantly in the last few decades, the quality of education hasn't been able to keep pace with the growth. Urban areas have seen much improvement while the rural parts of the country, particularly the Amazon region, have suffered. Forty-two percent of Ecuador's 12,291 schools offer grades one through six in one classroom. These schools receive few teaching resouces. Many of the teachers in these rural, multigrade schools have little or no teaching experience. More qualified teachers refuse to teach in multigrade classrooms, preferring to teach in urban areas or not to teach at all. CRECERA, (Regional Center for Education Communication), is testing the feasibility of using interactive radio instruction to improve the quality of instruction in Ecuador's multigrade classrooms.

Costa Rica

Costa Rica is replicating Honduras' *La Familia de los Numeros*. Replication costs even less than adaptation since it involves very minor changes to program design. Costa Rica's National Teaching Center is rewriting the program introductions and endings, and making minor grammatical changes and corrections before rerecording the broadcasts. They have also reduced the number of lessons. Some of the material is considered redundant for Costa Rica's first graders who receive better preschool preparation. Initial reactions, particularly teacher acceptance has been very positive and the Ministry of Education plans to expand the program nationwide.

Does it Work?: What Teachers Think

IRI supports teaching in three ways: 1) as a resource for teachers who have few instructional materials; 2) as a support for underqualified and/or multigrade teachers; and 3) as a substitute for the teacher when one isn't available. Program representatives report that the majority of teachers who use interactive radio see it as a much needed and welcome teaching aid, especially teachers in rural areas with access to limited teaching resources.

Most of the negative reactions expressed by teachers were caused by misunderstandings of program goals. In some cases, teachers see IRI programs as attempts to replace them in the classroom. Conference participants emphasized the importance of explaining program goals to teachers, parents, politicians, and community leaders before broadcasts begin to help ensure broader support for the programs.

Finally, teachers who use interactive radio in the classroom have noticed significant improvement in subject knowledge. They also report that their students seem to have better concentration skills; that they follow directions more easily and work more independently; that they are more attentive in class and are better listeners; and that they seem more motivated and excited about learning.

For more information on the interactive radio programs sponsored by the U.S. Agency for International Development, contact:

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Radio Learning Project